



**SCEC**

**CERTIFICATION APPLICATION REPORT FOR  
FOUR 10.5MW SIMPLE CYCLE TURBINES AT  
CENTURY SUBSTATION**

**PREPARED FOR:**

Alliance Power, Inc.  
13934 Eberle Road  
Bakersfield, California 93313

**FOR SUBMITTAL TO:**

California Energy Commission  
1516 Ninth Street  
Sacramento, California 95814

**PREPARED BY:**

**SCEC**

Air Quality Specialists  
1582-1 N. Batavia Street  
Orange, California 92867  
(714) 282-8240

March, 2001

## **ATTACHMENTS**

**ATTACHMENT A**

**EMERGENCY SITING APPLICATION PROCESS APPLICATION CHECKLIST**

**ATTACHMENT A**  
**CALIFORNIA ENERGY COMMISSION**  
**EMERGENCY SITING PROCESS APPLICATION CHECK LIST**

REQUIREMENT	YES/NO	PAGE IN APPLICATION
<b>1 Project Description</b>		
1.1 Project owner/operator (Name, title, address, phone)	Y	1
1.2 Overview of power plant and linear facilities	Y	1
1.3 Structure demensions (size and height), plan and profile	Y	2
1.4 Full size color photo of the site and rendering of proposed facility if available	Y	2
1.5 Maximum foundation depth, cut and fill quantities	Y	2
1.6 Conformance with California Building Code	Y	2
1.7 Proposed operation (hours per year)	Y	2
1.8 Expected on-line date	Y	3
1.9 Proposed duration of operation (years)	Y	3
1.10 Identify transmission interconnection facilities	Y	3
1.11 Transmission interconnection application	Y	3
1.12 "Down-stream" transmission facilities, if known	Y	3
1.13 Fuel interconnection facilities	Y	3
1.14 Fuel interconnection application	Y	4
1.15 Water requirements and treatment	Y	4
1.16 Water interconnection facilities (supply/discharge)	Y	4
1.17 Source and quality of water supply	Y	4
1.18 Water supply agreement/proof of water supply	Y	4
<b>2 Site Description</b>		
2.1 Site address (street, city, county)	Y	5
2.2 Assessor's parcel number	Y	5
2.3 Names and addresses of all property owners within 500 feet of the project site or related facilities in both hard copy and electronic mail merge format.	Y	5
2.4 Existing site use	Y	5
2.5 Existing site characteristics (paved, graded, etc.)	Y	5
2.6 Layout of site (include plot plan)	Y	5
2.7 Zoning and general plan designations of site and linear facilities	Y	5
2.8 Ownership of site (Name, address, phone)	Y	6
2.9 Status of site control	Y	6
2.9 Equipment laydown area – size and location	Y	6
<b>3 Construction Description</b>		
3.1 Construction schedule	Y	7
3.2 Workforce requirements (peak, average)	Y	7
<b>4 Power Purchase Contract (DWR, ISO, other)</b>		
4.1 Status of negotiations and expected signing date	Y	8
<b>5 Air Emissions</b>		
5.1 Nearest monitoring station (location, distance)	Y	9
5.2 Provide complete self certification air permit checklist	Y	9
5.3 Provide complete air permit application	Y	9
5.4 Status of air permit application with air district	Y	10
5.5 Status of offsets and/or mitigation fees, as required	Y	10
<b>6 Noise</b>		
6.1 Local noise requirements	Y	11
6.2 Nearest sensitive receptor (type, distance)	Y	11
6.3 Project noise level at nearest property line	Y	11
6.4 Proposed mitigation if required	Y	11
<b>7 Hazardous Materials</b>		
7.1 Type and volume of hazardous materials on-site	Y	12

REQUIREMENT	YES/NO	PAGE IN APPLICATION
7.2 Storage facilities and containment	Y	12
<b>8 Biological resources</b>		
8.1 Legally protected species* and their habitat on site, adjacent to site and along right of way for linear facilities (*	Y	13
8.2 Designated critical habitat on site or adjacent to site (wetlands, vernal pools, riparian habitat, preserves)	Y	13
8.4 Proposed mitigation as required	Y	13
<b>9 Land Use</b>		
9.1 Local land use restrictions (height, use, etc.)	Y	14
9.2 Use of adjacent parcels (include map)	Y	14
9.3 Ownership of adjacent parcels – site and linears	y	14
9.4 Demographics of census tract where project is located (most current available)	y	14
<b>10 Public Services</b>		
10.1 Ability to serve letter from Fire District	Y	15
10.2 Nearest fire station	Y	15
<b>11 Traffic and Transportation</b>		
11.1 Level of Service (LOS) measurements on surrounding roads – a.m. and p.m. peaks	Y	16
11.2 Traffic Control Plan for roads during construction	Y	16
11.3 Traffic impact of linear facility construction	Y	16
11.4 Equipment transport route	Y	16
11.5 Parking requirements – workforce and equipment	Y	17
<b>12 Soils and Water Resources</b>		
12.1 Wastewater volume, quality, treatment	Y	18
12.2 Status of permits for wastewater discharge or draft permit (WDR/NPDES)	N/A	
12.3 Draft Erosion Prevention and Sedimentation Control Plan or Mitigation Strategy	Y	18
12.4 Spill Prevention/Water Quality Protection Plans	Y	18
<b>13 Cultural Resources</b>		
13.1 Identification of known historic/prehistoric sites	Y	19
13.2 Proposed mitigation if required	Y	19
13.3 Notification of Native Americans	Y	19
<b>14 Paleontological Resources</b>		
14.1 Identification of known paleontologic sites	Y	20
14.2 Proposed mitigation if required	Y	20
<b>15 Visual resources</b>		
15.1 Plan for landscaping and screening to meet local requirements	Y	21
15.2 Full size color photo of the site and rendering of proposed facility with any proposed visual mitigation if available	N	
<b>16 Transmission System Engineering</b>		
16.1 Conformance with Title 8, High Voltage Electrical Safety Orders, CPUC General Order 95 (or NESC), CPUC Rule 21, PTO Interconnection Requirements, and National Electric Code	Y	22

**ATTACHMENT B**

**AIR QUALITY SELF CERTIFICATION CHECKLIST  
FOR SIMPLE CYCLE GAS TURBINE GENERATION UNITS**

**ATTACHMENT B****California Energy Commission****Air Quality Self-Certification Checklist for Simple-Cycle Gas Turbine Generation Units**

License Application for:

☒ New Emissions Unit(s) at a New Stationary Source☐ New Emissions Unit(s) at an Existing Stationary Source

DISTRICT:

South Coast Air Quality Management District

DATE:

March 8, 2001

**FACILITY INFORMATION**

License to be Issued to:

Alliance Colton LLC

Mailing Address:

7950 S. Lincoln St. Suite 114

City:

Littleton

State:

Colorado

Zip Code:

80122

Address Where Equipment Will be Operated:

661 South Cooley Drive

City:

Colton

State:

California

Zip Code:

Nature of Business:

Power Generation

SIC Code:

4911

Facility Contact Person:

Brian O'Neill

Phone Number:

1-661-836-9873

Fax Number:

1-661-836-9853

Email:

Application Information Contact Person (if different from above):

Karl Lany

Phone Number:

1-714-282-8240

Fax Number:

1-714-282-8247

Email:

Will the facility be under contract to sell its power within California? ☒ Yes ☐ No

If Yes, state the entity contracted with and the percentage of power that will be sold:

California Department of Water Resources – 100%

What is the maximum total electrical output of the new power generation equipment at International Standards Organization (ISO) conditions? 42

MW

Estimated construction start date: : 4 / 1 / 01Estimated completion date: : 7 / 15 / 01Length of commissioning period (from date of initial startup): two to three weeks (20 operating hours)

# NEW EQUIPMENT INFORMATION

<b>TURBINE #1</b>	If multiple identical units, indicate number of units of this type: <u>4</u>		
		10.5 MW	MW
	Manufacturer: General Electric		
	Model: 10B1		
	Maximum Heat Input (based on LHV of fuel): 116.3; 129 (based on HHV of fuel) MMBtu/hr		
	Reference to lower heating value (LHV) in this application are based upon 948 Btu/cf. References to higher heating value (HHV) are based upon 1050 Btu/cf.		
<b>TURBINE #2</b>	If multiple identical units, indicate number of units of this type: _____		
		MW	MW
	Manufacturer:		
	Model:		
Maximum Heat Input (based on HHV of fuel):			MMBtu/hr

Suggested Best Available Control Technology (BACT)		Emission Level	Control Technology
	NOx	5 ppmvd @ 15% O <sub>2</sub> (1-hr rolling average)	Selective catalytic reduction or other equivalent control device
	CO	6 ppmvd @ 15% O <sub>2</sub> (1-hr rolling average)	Oxidation catalyst or equivalent control device
	VOC	2 ppmvd @ 15% O <sub>2</sub> (1-hr rolling average)	Oxidation catalyst or equivalent control device
	PM10	Emission limit corresponding to natural gas firing (PUC quality natural gas)	Natural gas firing (PUC quality natural gas)
	SO2	Emission limit corresponding to natural gas firing (PUC quality natural gas)	Natural gas firing (PUC quality natural gas)
	If applicable, NH3	10 ppmvd @ 15% O <sub>2</sub> (1-hr rolling average)	

<b>Selective Catalytic Reduction Information, if applicable</b>  <div style="font-size: 2em; text-align: center;">N/A</div>	<b>IF NOT INDICATED, PLEASE SPECIFY UNITS OF MEASUREMENT:</b>						
	<b>Ammonia Storage Tank(s):</b>	Tank type:					
		Number of tanks:					
		Tank size:					
		Reactant type:					
		<input type="checkbox"/> Anhydrous ammonia <input type="checkbox"/> Aqueous ammonia <input type="checkbox"/> Urea If aqueous ammonia, indicate ammonia concentration: _____					
		Turnover rate:					
	<b>SCR Manufacturer:</b>						
	<b>SCR Make:</b>						
	<b>SCR Model:</b>						
	<b>Catalyst dimensions:</b>	Length:	ft	Width:	ft	Height:	ft
	Pressure drop across SCR unit:						
	Pressure drop across ammonia injection grid:						
	Space velocity (gas flow rate/catalyst volume):						
	Area velocity (gas flow rate/wetted catalyst surface area):						



# NEW EQUIPMENT INFORMATION (continued)

<b>Selective Catalytic Reduction Information, if applicable (continued)</b>  <b>N/A</b>	<b>Manufacturer's guarantee:</b>	Control efficiency: %	Catalyst life: yrs
	Ammonia injection rate:		
	NOx concentration into SCR unit: ppmvd @ 15% O <sub>2</sub>		
	SO <sub>2</sub> oxidation rate:	SO <sub>3</sub> emissions:	
	Operating temperature range of catalyst: °F		
	Temperature at which ammonia injection will begin: °F		

<b>Oxidation Catalyst Information, if applicable</b>  <b>N/A</b>	<i>IF NOT INDICATED, PLEASE SPECIFY UNITS OF MEASUREMENT:</i>			
	<b>Manufacturer:</b>			
	<b>Make:</b>			
	<b>Model:</b>			
	<b>Catalyst dimensions:</b>	Length: ft	Width: ft	Height: ft
	Pressure drop across catalyst:			
	<b>Manufacturer's guarantee:</b>	CO control efficiency: %	Catalyst life: yrs	
		VOC control efficiency: %		
	Space velocity (gas flow rate/catalyst volume):			
	Area velocity (gas flow rate/wetted catalyst surface area):			
	Catalyst cell density (cells per square inch):			
	CO concentration into catalyst: ppmvd @ 15% O <sub>2</sub>			
	VOC concentration into catalyst: ppmvd @ 15% O <sub>2</sub>			
Operating temperature range of catalyst: °F				

<b>Fuel Data</b>	Fuel Type: Natural gas		<b>Specify sulfur content if other than 5 gr/100 scf</b>	
	Higher Heating Value: 1030-1060	Btu/scf	Sulfur Content:	gr/100 scf
	MAXIMUM FUEL CONSUMPTION RATE: 0.123 MMscf/hr			
	<b>Exhaust Data:</b>	Flow:	199,537 ACFM	M/sec or m <sup>3</sup> /sec or acfm

<b>On-line Normalized Emission Rate</b>	(If corrected to other than 15% O <sub>2</sub> , indicate at right)			%O <sub>2</sub>
	Specify by units listed below or indicate other values and units at right:			
	<b>NOX</b>	25 ppmvd on a 1-hr rolling avg. prior to Xonon installation. 5 ppmv after Xonon installation.	lb/MMBtu	GE guarantee
	<b>CO</b>	20 ppmvd on a 1-hr rolling avg. prior to Xonon installation. 10 ppmv after Xonon installation.	Lb/MMBtu	GE guarantee
	<b>VOC (ROG)</b>	ppmvd on a 1-hr rolling avg.	.0030 lb/MMBtu (lhv)	AP 42
	<b>PM10</b>	ppmvd on a 1-hr rolling avg.	.0066 lb/MMBtu (lhv)	AP 42
	<b>SO<sub>2</sub></b>	ppmvd on a 1-hr rolling avg.	.0034 lb/MMBtu (lhv)	AP 42
	<b>If applicable, NH<sub>3</sub></b>	ppmvd on a 1-hr rolling avg.	lb/MMBtu	AP 42

**NEW EQUIPMENT INFORMATION (continued)**

On-line Mass Emission Rate (each turbine)		Hourly [lbs/hr]	Daily [lbs/day]	Quarterly [lbs/qtr]	Annual [tons/yr]
*Annual emission rates based on assumed 1785 Hours for ROG, SOX, SO <sub>2</sub> due to NO <sub>x</sub> controlling factors. Actual emission rates to be determined based upon initial emission test data	NOX	11.81 (Initial)	283.5 (initial)	N/A for SCAQMD	2.5 (initial)
	CO	5.76 (Initial)	138.2 (initial)	N/A for SCAQMD	1.22 (initial)*
	VOC (ROG)	.35	8.4	N/A for SCAQMD	0.31*
	PM10	.77	18.4	N/A for SCAQMD	0.7*
	SO <sub>2</sub>	.4	9.5	N/A for SCAQMD	0.35*
	If applicable, NH <sub>3</sub>				
Startup and Shutdown Mass Emission Rate (each turbine)		Startup Emissions Hourly [lbs/hr]		Shutdown Emissions Hourly [lbs/hr]	
	NOX	Not available		Not available	
	CO	Not Available		Not Available	
	VOC	Not Available		Not Available	
	PM10	Not Available		Not Available	
	SO <sub>2</sub>	Not Available		Not Available	
Commissioning Period Mass Emission Rate (each turbine)		Hourly [lbs/hr]		Daily [lbs/day]	
	NO <sub>x</sub>	Not Available		Not Available	
	CO	Not Available		Not Available	
	VOC	Not Available		Not Available	
	PM10	Not Available		Not Available	
	SO <sub>2</sub>	Not Available		Not Available	

Operating Parameters	Operating Hours: *Estimated based upon guarantee emission rates, actual hours to be determined based upon actual emissions and 10 tpy NO <sub>x</sub> limit and 4 tpy PM10 limit.	[hrs/day]	[hrs/qtr]	[hrs/yr]
		24	500 (initial), 1785 after Xonon Installation*	500 (initial), 1785 after Xonon Installation*
	Startup Data:	Number of startups per day:		Est. 2 max
		Number of startups per year:		Est. 50 initial max,
		Startup duration:		10 min.
	Shutdown Data:	Number of shutdowns per day:		2 max.
		Number of shutdowns per year:		Est. 50 initial max,
		Shutdown duration:		10 min.

# NEW EQUIPMENT INFORMATION (continued)

Facility Annual Emissions and Emissions to be Offset Estimated based upon post Xonon installation and information available today. Although only NOx emissions will exceed offset thresholds, emissions for other pollutants may be higher and will be determined upon start-up tests.	Facility Annual Emissions [tons/yr]	Emissions That Need to be Offset					
		Q1 [lbs/qtr]	Q2 [lbs/qtr]	Q3 [lbs/qtr]	Q4 [lbs/qtr]	Annual [tons/yr]	
	NOx	9.99	N/A for SCAQMD				9.99
	CO	11*					0
	VOC	2*					0
	PM10	3*					0
	SO <sub>2</sub>	2*					0

Offsets to be Provided	Offset Ratio	Offsets Required				Source of Offsets
		Q1 [lbs/qtr]	Q2 [lbs/qtr]	Q3 [lbs/qtr]	Q4 [lbs/qtr]	
NOx	1:1					<input checked="" type="checkbox"/> State bank* <input type="checkbox"/> District bank <input type="checkbox"/> Other, specify:
CO						<input type="checkbox"/> State bank <input type="checkbox"/> District bank
VOC						<input type="checkbox"/> State bank <input type="checkbox"/> District bank <input type="checkbox"/> Other, specify:
PM10						<input type="checkbox"/> State bank <input type="checkbox"/> District bank
SO <sub>2</sub>						<input type="checkbox"/> State bank <input type="checkbox"/> District bank

<b>Monitoring and Reporting</b>	What is the make/model of the continuous emissions monitoring system (CEMS), if known? Make: <u>To be determined. Will meet SCAQMD RECLAIM specifications.</u> Model: _____
	The following parameters will be continuously monitored: <input checked="" type="checkbox"/> NOx <input checked="" type="checkbox"/> CO (if required by SCAQMD) <input checked="" type="checkbox"/> O <sub>2</sub> <input checked="" type="checkbox"/> Fuel flow rate <input type="checkbox"/> Ammonia injection rate <input type="checkbox"/> Other, please specify: _____
	Will the CEMS be used to measure both on-line and startup/shutdown emissions? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

\*Note: The maximum amount of NOx offsets that can be acquired from the State bank is 21,125 lbs/yr (10.6 tons/yr) x the applicable distance ratio.

### ADDITIONAL INFORMATION

1. **Facility Location (to be also used for air dispersion modeling analysis):** ☒ Urban (area of dense population) ☐ Rural (area of sparse population)  
Will the facility be located within 1,000 feet of a school? ☐ Yes ☒ No  
(Note: Per Section 42301.9 of the California Health and Safety Code, a "school" means any public or private school used for purposes of the education of more than 12 children in kindergarten or any of grades 1 to 12, inclusive, but does not include any private school in which education is primarily conducted in private homes.)
2. **Nearest Receptor:**  
Distance to nearest residence 3,500 feet  
Distance to nearest business 180 feet
3. **Air Dispersion Modeling Input Data**  
Stack Parameters:  
Height 52 feet Inside diameter 10 ft x 8 ft.  
Stack Gas Exit Temperature (°K) 770.92  
Is a rain cap present on the exhaust stack? ☐ Yes ☒ No  
Direction of exhaust from structure or device: ☒ Vertical ☐ Horizontal  
Building Dimension Data for Downwash Calculations:  
a) Building Height N/A  
b) Minimum horizontal building dimension N/A  
c) Maximum horizontal building dimension N/A
4. Was an ambient air quality impact analysis required for this project? ☒ Yes ☐ No  
If Yes, was an ambient air quality impact analysis conducted as required by District rules? ☒ Yes ☐ No  
If yes, please attach the analysis and provide an electronic version on disk or CD.
5. Was a health risk assessment required for this project? ☒ Yes ☐ No  
If Yes, was a health risk assessment conducted as required by District rules? ☒ Yes ☐ No  
If Yes, please attach the analysis and provide an electronic version on disk or CD.
6. Please attach a site map for the project. Attachment D

### CERTIFICATION

Based on information and belief formed after reasonable inquiry, I certify that the statements and information in and attached to this document are, true, accurate, and complete.

Brian S. Moreau  
Responsible Official (Please Print Name)

Brian S. Moreau  
Signature of Responsible Official

3/9/01  
Date

**ATTACHMENT C**

**AIR QUALITY APPLICATION FOR SIMPLE-CYCLE  
GAS TURBINE GENERATION UNITS**

**ATTACHMENT C**  
**California Energy Commission**  
**Air Quality Application for Simple-Cycle Gas Turbine Generation Units**

EQUIPMENT DESCRIPTION:

This Authority To Construct Is Issued And Is Valid For This Equipment Only While It Is In The Configuration Set Forth In The Following Description:

Installation Of A Simple-Cycle Gas Turbine Generator Consisting Of:

1. Simple Cycle Gas Turbine, [General Electric], [10B1], [116.3MMBtu/hr (LHV)], [Nominal Electrical Output (10.5MW) at ISO conditions], Natural Gas-Fired, with delayed installation of Xonon combustor for emissions control.
2. ~~Selective Catalytic Reduction NOx Control System, [Make], [Model].~~
3. ~~Ammonia Injection System, [Make], [Model]  
(including the ammonia storage tank and control system)~~
4. ~~Oxidation Catalyst System, [Make], [Model].~~
5. Continuous emission monitoring system (CEMS) designed to continuously record the measured gaseous concentrations, and calculate and continuously monitor and record the NOx and CO concentrations in ppmvd corrected to 15% oxygen on a dry basis.

PERMIT CONDITIONS:

The Equipment For Which This Authority To Construct Is Issued May Be Operated Only When In Compliance With The Following Conditions:

1. Consistency with Analyses: Operation of this equipment shall be conducted in accordance with all information submitted with the application (and supplements thereof) and the analyses under which this permit is issued unless otherwise noted below.
2. Conflicts Between Conditions: In the event that any condition herein is determined to be in conflict with any other condition contained herein, then, if principles of law do not provide to the contrary, the condition most protective of air quality and public health and safety shall prevail to the extent feasible.
3. Reimbursement of Costs: All reasonable expenses, as set forth in the District's rules or regulations, incurred by the District for all activities that follow the issuance of this permit, including but not limited to permit condition implementation, compliance verification and emergency response, directly and necessarily related to enforcement of the permit shall be reimbursed by the owner/operator as required by the District's rules or regulations.
4. Access to Records and Facilities: As to any condition that requires for its effective enforcement the inspection of records or facilities by representatives of the District, the Air Resources Board (ARB), the U.S. Environmental Protection Agency (U.S. EPA), or

the California Energy Commission (CEC), the owner/operator shall make such records available or provide access to such facilities upon notice from representatives of the District, ARB, U.S. EPA, or CEC. Access shall mean access consistent with California Health and Safety Code Section 41510 and Clean Air Act Section 114A.

5. Notification of Commencement of Operation: The owner/operator shall notify the District of the date of anticipated commencement of turbine operation not less than 10 days prior to such date. Temporary operations under this permit is granted consistent with the District's rules and regulations.
6. Operations: The gas turbine, emissions controls, CEMS and associated equipment shall be properly maintained and kept in good operating condition at all times when the equipment is in operation.
7. Visible Emissions: No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark or darker than Ringlemann 1 or equivalent 20% opacity.

### **ALTERNATIVE EMISSION LIMITS**

FOR CAUSE, AN APPLICANT MAY PROPOSE AN ALTERNATE NO<sub>x</sub> EMISSION LIMIT UP TO, BUT NOT EXCEEDING, 25 PPM FOR THE SUMMER OF 2001. HOWEVER, THE APPLICANT MUST APPLY BACT AND MEET A NO<sub>x</sub> EMISSION LIMIT OF 5 PPM PRIOR TO JUNE 1, 2002. THE FOLLOWING ALTERNATE CONDITION 8 SHOULD BE USED IN THIS SITUATION.

8. Emission Limits:
  - 8.1. Oxides of nitrogen (NO<sub>x</sub>) emissions from the gas turbine shall not exceed 25 ppmvd @ 15% O<sub>2</sub> (1-hour rolling average), except during periods of startup and shutdown as defined by this permit, through May 31 January 31, 2003. By June 1, 2002 February 1, 2003, NO<sub>x</sub> emissions from the gas turbine shall not exceed 5 ppmvd @ 15% O<sub>2</sub> (1-hour rolling average), except during startup and shutdown. The NO<sub>x</sub> emission concentrations shall be verified by a District-approved continuous emission monitoring system (CEMS) and during any required source test.
  - 8.2. ~~By June 1, 2002, ammonia emissions from the gas turbine shall not exceed 10 ppmvd @ 15% O<sub>2</sub> (1-hour rolling average), except during periods of startup and shutdown as defined in this permit. The ammonia emission concentration shall be verified by the continuous recording of the ratio of the ammonia injection rate to the NO<sub>x</sub> inlet rate to the SCR control system (molar ratio). A minimum NH<sub>3</sub>/NO<sub>x</sub> molar ratio of 1.0 shall be used at all times. The maximum allowable NH<sub>3</sub>/NO<sub>x</sub> molar ratio shall be determined during any required source test, and shall not be exceeded until reestablished through another valid source test.~~
  - 8.3. ~~By June 1, 2002 February 1, 2003, carbon monoxide (CO) emissions from the gas turbine shall not exceed 6 10 ppmvd @ 15 % O<sub>2</sub> (1-hour rolling average), except during periods of startup and shutdown as defined in this permit. The CO emission concentration shall be verified by a District-approved CEMS and during any required source test.~~

- 8.4 By ~~June 1, 2002~~ February 1, 2003, volatile organic compound (VOC) emissions from the gas turbine shall not exceed 2 ppmvd @ 15% O<sub>2</sub> (1-hour rolling average), except during periods of startup and shutdown as defined in this permit. The VOC emission concentration shall be verified during any required source test.
- 8.5 Particulate matter emissions less than ten microns in diameter (PM<sub>10</sub>) from the gas turbine shall not exceed 0.77 pounds per hour, except during periods of startup and shutdown as defined in this permit. The PM<sub>10</sub> mass emission rate shall be verified during any required source test.
- 8.6 Oxides of sulfur emissions (SO<sub>x</sub>) from the gas turbine shall not exceed 0.40 pounds per hour, except during periods of startup and shutdown as defined in this permit. The SO<sub>x</sub> emission rate shall be verified during any required source test.
9. Turbine Startup: Startup of the gas turbine shall not exceed a time period of 10 minutes each per occurrence, or another time period based on good engineering practice and approved in advance by the District. The startup clock begins with the turbine's initial firing and continues until the unit meets the emission concentration limits.
10. Turbine Shutdown: Shutdown of the gas turbine shall not exceed a time period of 10 minutes each per occurrence, or another time period based on good engineering practice and approved in advance by the District. Shutdown begins with initiation of the turbine shutdown sequence and ends with the cessation of turbine firing.
11. Mass Emission Limits: Mass emissions from the gas turbine shall not exceed the daily, quarterly, and annual mass emission limits listed in Table 1 and Table 2 below.

**TABLE 1 – MASS EMISSION LIMITS (~~EXCLUDING~~ INCLUDING STARTUPS AND SHUTDOWNS) THE FOLLOWING EMISSION LIMITS SHOULD BE APPLIED TO THE FACILITY UNTIL ACTUAL EMISSION RATES CAN BE DETERMINED UPON INSTALLATION OF XONON.**

Pollutant	Daily (lb)	Quarterly (tons)	Annual (tons)
NO <sub>x</sub> (as NO <sub>2</sub> )	283.5	N/A for SCAQMD	2.50
VOC	8.4	N/A for SCAQMD	0.9
CO	138.2	N/A for SCAQMD	7
SO <sub>x</sub> (as SO <sub>2</sub> )	9.5	N/A for SCAQMD	0.9
PM <sub>10</sub>	18.4	N/A for SCAQMD	0.9

**TABLE 2 – MASS EMISSION LIMITS - STARTUPS AND SHUTDOWNS**

Pollutant	Annual (tons)
NO <sub>x</sub> (as NO <sub>2</sub> )	Not Available



VOC	Not Available
CO	Not Available
SOx (as SO <sub>2</sub> )	Not Available
PM10	Not Available

The daily, quarterly and annual mass limits are on a calendar basis. Compliance shall be based on sliding average one-hour readings through the use of process monitors (e.g., fuel use meters), CEMS, and source test results; and the monitoring, recordkeeping and reporting conditions of this permit.

12. Operational Limits: In order to comply with the emission limits of this rule, the owner/operator shall comply with the following operational limits:
  - (a) The heat input to the gas turbine **initially** shall not exceed the following:
 

Hourly: 129 MMBtu/hr  
 Daily: 3096 MMBtu/day  
 Quarterly: N/A  
 Annual: N/A To be replaced with annual NOx limits not to exceed 10 tons per year and PM10 limits not to exceed 4 tons per year.
  - (b) Only PUC Quality natural gas (General Order 58-a) shall be used to fire the gas turbine. The natural gas shall not contain total sulfur in concentrations exceeding 5 gr/100 scf or hydrogen sulfide exceeding 0.25 gr/100 scf.
  - (c) The owner/operator of the gas turbine shall comply with the daily, quarterly, and annual emission limits listed in Table 1 by ~~not operating more than 24 hours per day, 500 hours per calendar quarter, or 500 hours per year.~~ monitoring NOx emissions and not exceeding 10 tpy, and by not exceeding 4 tpy PM10 based upon an emission rate to be established upon startup source tests.
  - (d) ~~The damper on the gas turbine bypass stack shall remain in a fully closed position except during periods of startup and shutdown as defined in this permit.~~
  - (e) The owner/operator of the gas turbine shall comply with the annual emission limits listed in Table 2 by limiting the turbine startups to no more than 50 occurrences per year, and by limiting turbine shutdowns to no more than 50 occurrences per year.
13. Monitoring Requirements: The owner/operator shall comply with the following monitoring requirements:
  - (a) The gas turbine exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods.
  - (b) ~~The ammonia injection system shall be equipped with an operational ammonia flowmeter and injection pressure indicator accurate to plus or minus five percent at full scale and calibrated once every twelve months.~~
  - (c) The gas turbine exhaust shall be equipped with continuously recording emissions monitor(s) for NOx, CO (if required by SCAQMD) and O2. Continuous emissions

monitors shall comply with the requirements of 40 CFR Part 60, Appendices B and F, and 40 CFR Part 75, and shall be capable of monitoring concentrations and mass emissions during normal operating conditions and during startups and shutdowns.

- (d) ~~The fuel heat input rate shall be continuously recorded using District-approved fuel flow meters along with quarterly fuel compositional analyses for the fuel's higher heating value (wet basis).~~ Fuel throughput shall be monitored in accordance with SCAQMD Regulation XX protocol for RECLAIM facilities.
- (e) The total sulfur and hydrogen sulfur content of the fuel gas shall be analyzed on a quarterly basis.

14. Source Testing/RATA: Within sixty days after startup of the gas turbines, and at a minimum on an annual basis thereafter, a relative accuracy test audit (RATA) must be performed on the CEMS in accordance with 40 CFR Part 60 Appendix B Performance Specifications and a source test shall be performed. Additional source testing may be required at the discretion of the District to address or ascertain compliance with the requirements of this permit. The written test results of the source tests shall be provided to the District within thirty days after testing. A complete test protocol shall be submitted to the District no later than 30 days prior to testing, and notification to the District at least ten days prior to the actual date of testing shall be provided so that a District observer may be present. The source test protocol shall comply with the following: measurements of NO<sub>x</sub>, CO, VOC, and stack gas oxygen content shall be conducted in accordance with ARB Test Method 100; measurements of PM<sub>10</sub> shall be conducted in accordance with ARB Test Method 5; and measurements of ammonia shall be conducted in accordance with Bay Area Air Quality Management District test method ST-1B. Alternative test methods, and source testing scope, may also be used to address the source testing requirements of the permit if approved in advance by the District. The initial and annual source tests shall include those parameters specified in the approved test protocol, and shall at a minimum include the following:

- a. NO<sub>x</sub> (as NO<sub>2</sub>) – ppmvd at 15% O<sub>2</sub> and lb/MMBtu (inlet to SCR (if applicable), and Exhaust);
- b. ~~Ammonia – ppmvd at 15% O<sub>2</sub> (Exhaust);~~
- c. CO – ppmvd at 15% O<sub>2</sub> and lb/MMBtu (Exhaust);
- d. VOC – ppmvd at 15% O<sub>2</sub> and lb/MMBtu (Exhaust);
- e. PM<sub>10</sub> – lb/hr (Exhaust);
- f. SO<sub>x</sub> – lb/hr (Exhaust);
- g. Natural gas consumption, fuel High Heating Value (HHV), and total fuel sulfur content;
- h. Turbine load in megawatts;
- i. Stack gas flow rate (SDCFM) calculated according to procedures in U.S. EPA Method 19.
- j. Exhaust gas temperature (°F)
- k. ~~Ammonia injection rate (lb/hr or moles/hr)~~

15. A written quality assurance program must be established in accordance with 40 CFR Part 75, Appendix B and 40 CFR Part 60 Appendix F.

16. The owner/operator shall comply with the applicable requirements of 40 CFR Part 60 Subpart GG.
17. The owner/operator shall notify the District of any breakdown condition consistent with the District's breakdown regulations.
18. The District shall be notified in writing in a timeframe consistent with the District's breakdown regulations following the correction of any breakdown condition. The breakdown condition shall include a description of the equipment malfunction or failure, the date and cause of the initial failure, the estimated emissions in excess of those allowed, and the actions taken to restore normal operations.
19. Recordkeeping: The owner/operator shall maintain the following records:
  - (a) hourly, daily, quarterly and annual quantity of fuel used and corresponding heat input rates;
  - (b) the date and time of each occurrence, duration, and type of any startup, shutdown, or malfunction along with the resulting mass emissions during such time period;
  - (c) emission measurements from all source testing, RATAs and fuel analyses;
  - (d) daily, quarterly and annual hours of operation;
  - (e) hourly records of NO<sub>x</sub> and CO, emission concentrations and hourly ammonia injection rates and ammonia/NO<sub>x</sub> ratio.
  - (f) for the continuous emissions monitoring system; performance testing, evaluations, calibrations, checks, maintenance, adjustments, and any period of non-operation of any continuous emissions monitor.
20. All records required to be maintained by this permit shall be retained by the permittee for a period of five years and shall be made readily available for District inspection upon request.
21. Reporting: The owner/operator shall submit to the District a written report for each calendar quarter, within 30 days of the end of the quarter, which shall include:
  - (a) Daily and quarterly fuel use and corresponding heat input rates;
  - (b) Daily and quarterly mass emission rates for all criteria pollutants during normal operations and during other periods (startup/shutdown, breakdowns);
  - (c) Time intervals, date, and magnitude of excess emissions;
  - (d) Nature and cause of the excess emission, and corrective actions taken;
  - (e) Time and date of each period during which the CEM was inoperative, except for zero and span checks, and the nature of system repairs and adjustments;
  - (f) A negative declaration when no excess emissions occurred;
  - (g) Results of quarterly fuel analyses for HHV and total sulfur/hydrogen sulfide content; and
  - (h) A declaration that the owner/operator is in compliance with Governor's Executive Order D-26-01 and any other applicable Executive Order.
22. Emission Offsets: The owner/operator shall offset the project emissions in the amount and at the ratios outlined in Table 3. Emission offsets obtained through the State emission offset bank shall be valid for three years from the issuance of this permit at which time they shall become null and void. The owner/operator shall either obtain

replacement emission offsets from the District or shall cease operations at the end of this 3-year period.

**TABLE 3 – EMISSION OFFSETS**

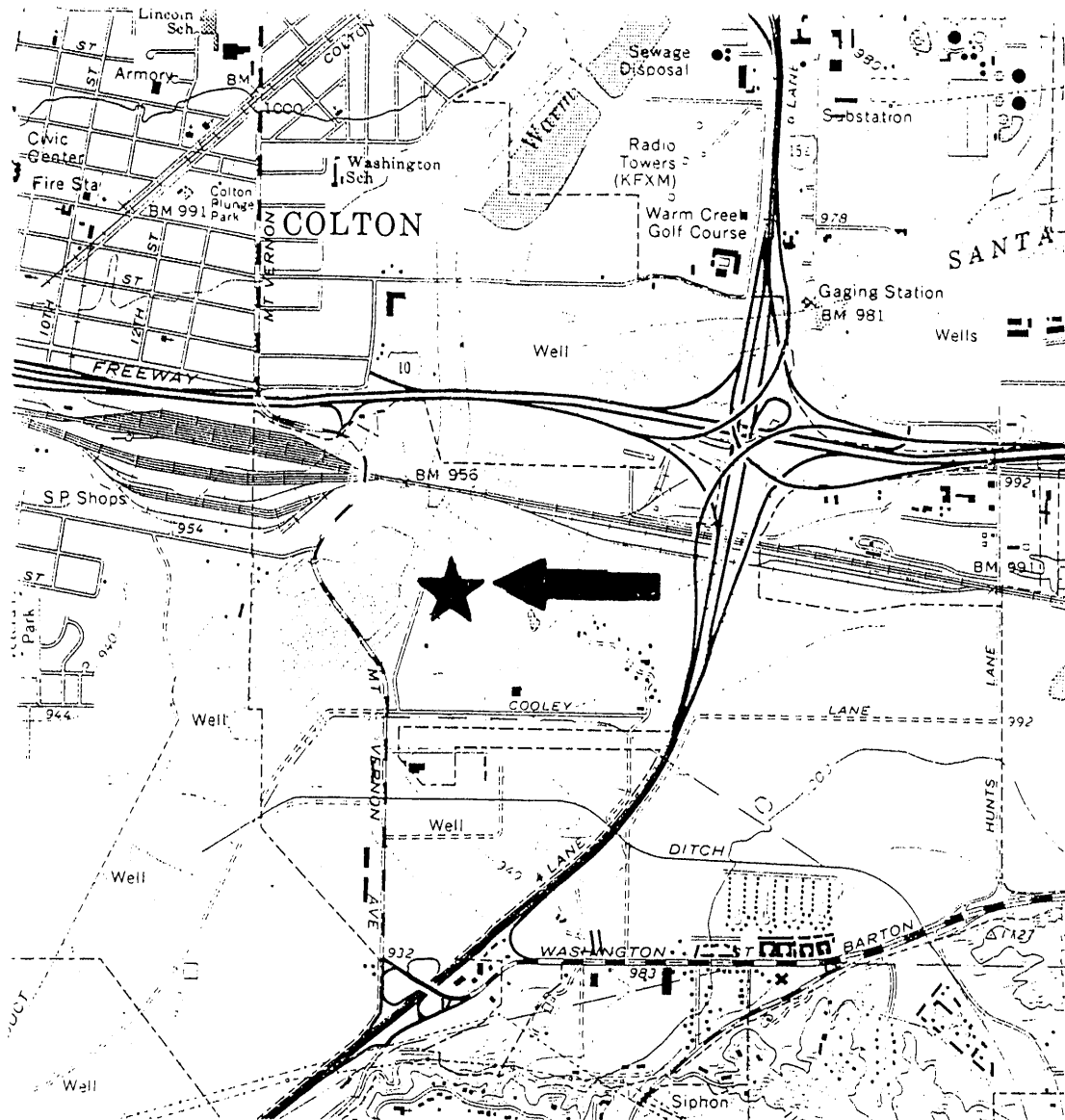
<b>Pollutant</b>	<b>Emissions Requiring Offsets (tons/yr)</b>	<b>Offset Ratio</b>	<b>Total ERCs Required (tons/yr)</b>	<b>Source of ERCs</b>
NOx (as NO <sub>2</sub> )	9.99	1:1	9.99	State Bank
VOC	0		0	
CO	0		0	
SOx (as SO <sub>2</sub> )	0		0	
PM10	0		0	

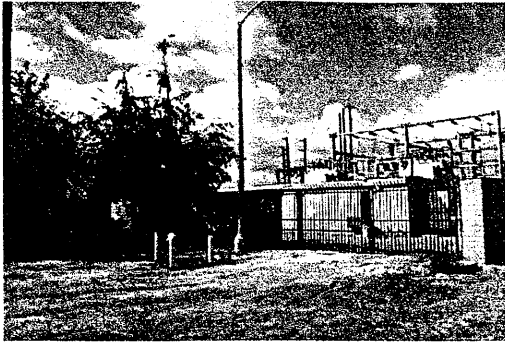
23. Executive Order Compliance: The owner/operator shall comply with the provisions of Governor's Executive Order D-26-01 and any other applicable Executive Order.
24. District Operating Permit: The owner/operator shall apply for and obtain all required operating permits from the District according to the requirements of the District's rules and regulations.

**ATTACHMENT D**

**LOCATION MAPS AND SITE DIAGRAMS**

**Alliance Power, Inc.  
Century Substation  
Facility Location Map**





DSC0046



DSC0050



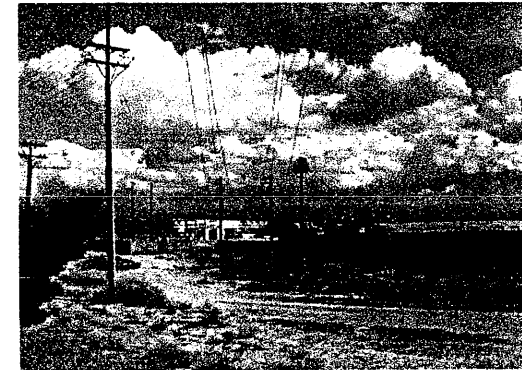
DSC0047



DSC0051



DSC0048



DSC0052

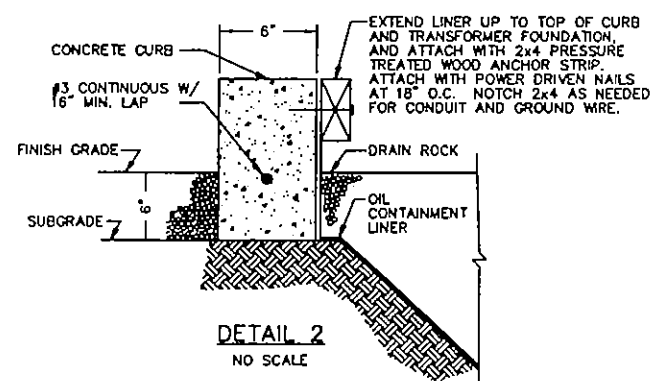
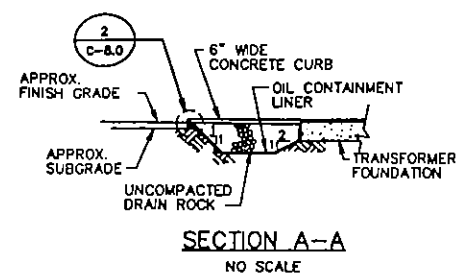
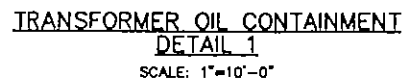


DCS0049





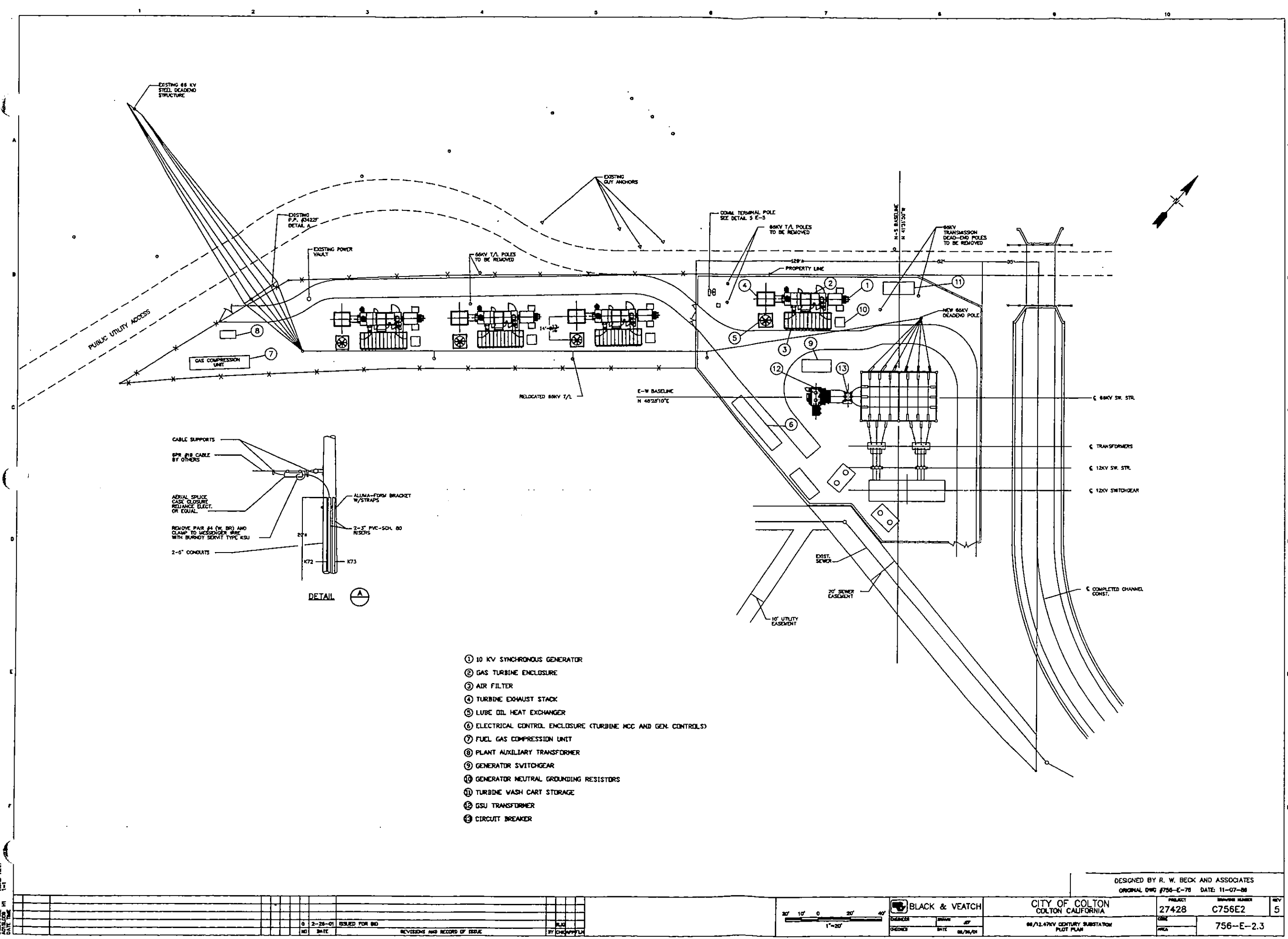




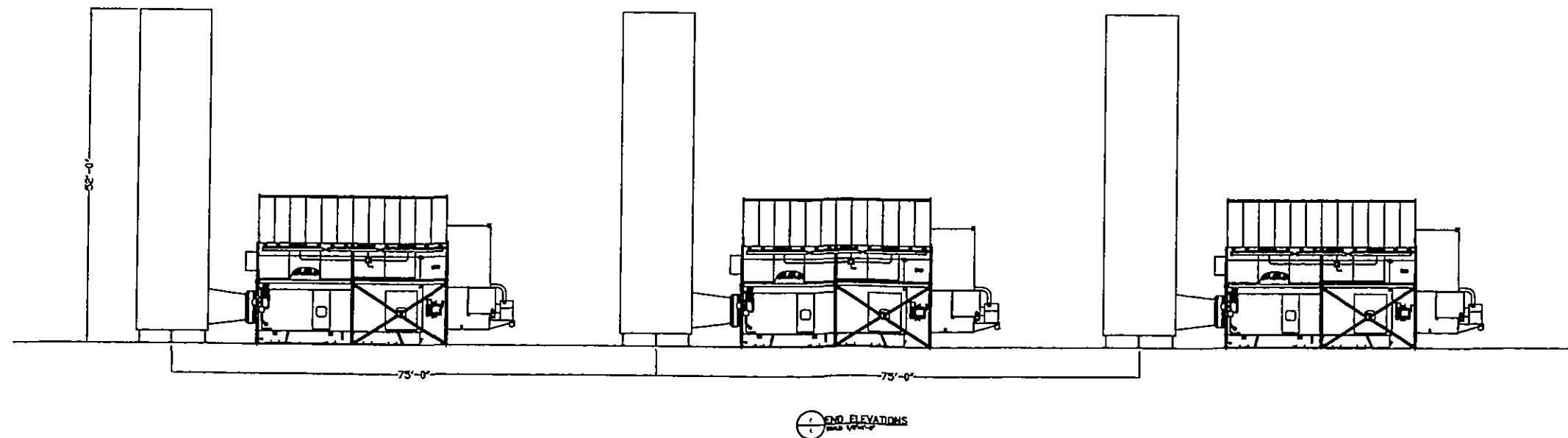
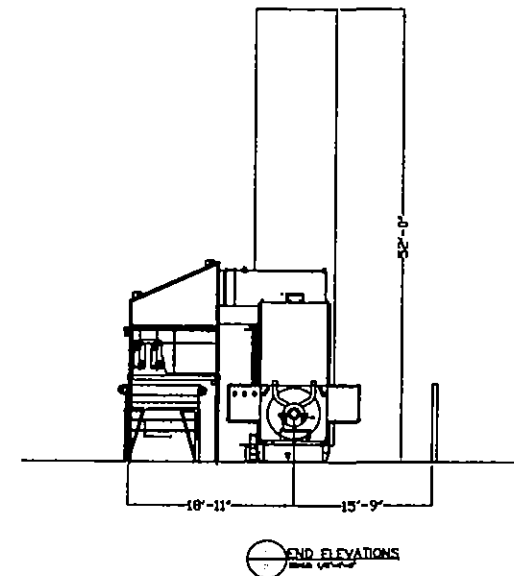
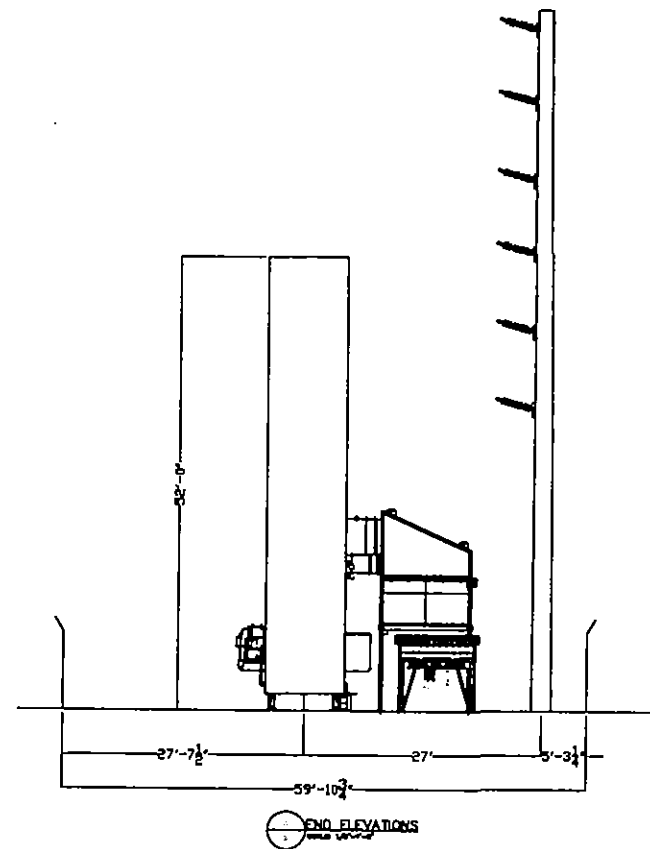
- NOTES:


1. TRANSFORMER DRAIN ROCK SHALL NOT BE COMPACTED. DRAIN ROCK SHALL BE 1.5" TO 3" CRUSHED ROCK AND SHALL HAVE HIGH VOIDS.
2. EXCAVATION SLOPES SHALL BE 2:1 FROM TRANSFORMER BASE AND 1:1 OTHERWISE.
3. OIL CONTAINMENT LINER SHALL BE SHELL DIALA AX, ASTM D3487.
4. ALL SHOP AND FIELD SEAMS SHALL BE MADE WITH A THERMO-TYPE PROCESS.
5. ALL ELECTRICAL AND MECHANICAL CONDUIT OR GROUP OF CONDUIT STUBUPS WITHIN OIL CONTAINMENT AREAS AND INCLUDING ALL CONDUITS PROTRUDING THROUGH THE MEMBRANE LINER SHALL HAVE AN APPROVED SEALING METHOD. THE SEALING METHOD SHALL BE COMPATIBLE WITH THE MEMBRANE LINER AND HAVE AT LEAST THE SAME OIL RESISTANCE INTEGRITY AS THE LINER.
6. THE 18" DIAM. PIPE SHALL BE PROVIDED WITH HOLES OR NOTCHES IN THE BOTTOM 12" TO ALLOW WATER IN. THE PIPE SHALL NOT BE FILLED WITH OIL CONTAINMENT ROCK.

[illegible]



- ① 10 KV SYNCHRONOUS GENERATOR
- ② GAS TURBINE ENCLOSURE
- ③ AIR FILTER
- ④ TURBINE EXHAUST STACK
- ⑤ LUBE OIL HEAT EXCHANGER
- ⑥ ELECTRICAL CONTROL ENCLOSURE (TURBINE MCC AND GEN. CONTROLS)
- ⑦ FUEL GAS COMPRESSION UNIT
- ⑧ PLANT AUXILIARY TRANSFORMER
- ⑨ GENERATOR SWITCHGEAR
- ⑩ GENERATOR NEUTRAL GROUNDING RESISTORS
- ⑪ TURBINE WASH CART STORAGE
- ⑫ GSU TRANSFORMER
- ⑬ CIRCUIT BREAKER

[illegible]

 <b>BLACK &amp; VEATCH</b>		
PROJECT	REMARKS	DATE
CHECKED	SAT'VE	3/27/01

CITY OF COLTON  
COLTON CALIFORNIA

CENTURY SUBSTATION  
ELEVATIONS—GENERATION ADDITION

	Product
	99918
	Cost
	Price

ELEVATION1

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99
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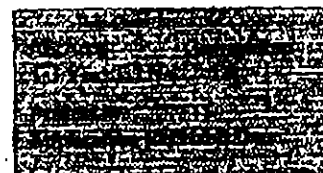
**ATTACHMENT E**

**INTERCONNECTION APPLICATIONS**



The Gas Company

## REQUEST FOR NON-RESIDENTIAL GAS FACILITIES



## PROJECT INFORMATION

PROJECT LOCATION	661 S. Cooky Drive	CITY	Colton
COUNTY	San Bernardino	CROSS STREET	Stover Via Viento

## APPLICANT INFORMATION

NAME (As it should appear on Contract)		DAY PHONE # (Include Area Code)	
Alliance Colton LLC		303 730 2328	
STREET ADDRESS (Include Apt/Suite, or Building Info - No P.O. Box)	CITY	STATE	ZIP CODE
7950 S. Lincoln St., Suite 114	Littleton	CO	80122
MAILING ADDRESS (If different than street address)	CITY	STATE	ZIP CODE
CONTACT NAME AND TITLE	DAY PHONE # (Include Area Code)	FAX #	
Brian S. Moreau - Project Manager	303-730-2328	303-730-2518	
PAGER # (Include Area Code)	MOBILE # (Include Area Code)	E-MAIL ADDRESS	
	303-378-0263	brian-moreau@alliancepower.com	

## CONSTRUCTION CONTACTS

NAME	TITLE	DAY PHONE # (Include Area Code)	FAX #
Brian S. Moreau	Project Manager	303-730-2328	303-730-2518
Mat Olson	Permit Specialist	661-836-3035	661-836-9853

TYPE OF GAS INSTALLATION REQUESTED: ☐ Main ☒ Service / MBA ☐ StubPREFERRED METHOD OF INSTALLATION: ☐ Applicant Provided Joint Trench ☒ Gas Company Provided Gas Only Trench  
☐ Applicant Provided Gas Only Trench

ESTIMATED GAS INSTALLATION START DATE: 6/1/01

TYPE OF BUSINESS: ☒ Commercial ☐ Food Service ☐ Industrial SIC Code: 4911TYPE OF CONSTRUCTION: ☒ New ☐ Existing, (access #: \_\_\_\_\_)

The following equipment information is REQUIRED to process your Application.

LOAD INFORMATION (Please indicate the gas equipment being installed and the associated load. Prepare a separate form for each meter):

List All Equip. (New and Existing)	Eq. Type	Eq. Input per Unit (MBTU/hr.)	Operating Schedule (Hrs/Day) (Days/Wk) (Mths/Yr)			Type of Alternate Fuel (If applicable)	Equipment Function
Item 1	Combustion Turbine	4137,500	14	5	12	NONE	Electric Generation
Item 2							
Item 3							
Item 4							
Item 5							
Item 6							
Item 7							

If additional space is needed, please add another copy of this page.

Gas Pressure Requested: 90-105 psig 8" Water Column (Standard): 5 lbs. Other: \_\_\_\_\_

Please provide Gas Company Representative, if known: Mario Romero

Please provide me with additional information on: ☐ Applicant Design ☐ Applicant Install

**Alliance Power, Inc.**

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February 22, 2001

Ms. Teri T. Kuniyuki  
Southern California Edison Company  
Grid Contracts and Business Development  
P.O. Box 900  
2244 Walnut Grove Avenue  
Rosemead, CA 91770

Subject: ISO Summer Reliability Generation in the City of Colton

Dear Teri:

On behalf of the City of Colton Electric Utility, Alliance Power hereby submits an application to interconnect new peaking generation to the ISO controlled grid. The new generation will be owned and operated by Alliance Colton LLC on substation property owned by the City of Colton. Alliance Colton's generation facilities consist of simple-cycle gas turbine generators, and will interconnect at 12.47kV at the Draws site, and at 66kV at the Century site. Both of these sites have a common point of interconnection to the Southern California Edison system at the Colton substation 66kV bus via existing transmission facilities.

In accordance with SCE's WDAT section 6.2(i) through (ix), Alliance Power provides the following requested information:

- (i) Tim Trewyn, Assistant Electric Utility Director  
City of Colton  
160 South 10th Street  
Colton, CA 92324  
909-370-6190  
909-370-6104 fax
- (ii) It is the intention of Alliance Colton LLC to sell generation into the ISO controlled grid in accordance with the requirements of the Summer Reliability Agreement with the ISO. The City of Colton currently operates and has operated an electric utility since 1895, therefore, per Section 2.1.1, the City of Colton Electric Utility is an eligible customer.
- (iii) The Point of Delivery to SCE's system is the 66kV bus at Colton substation. It is the understanding of Alliance Colton that the nearest ISO delivery point is SCE's Vista 230kV substation.
- (iv) The auxiliary loads for this facility will be procured at retail rates from the City of Colton Electric Utility. Each generating site will be served from Colton's 12kV distribution system.

---

Power Engineering and Environmental Solutions - Colorado, California, Virginia  
Telephone (303) 730-2328 Fax (303) 730-2518

and will provide a total of 1.2MW of 3 phase, 480/277 volt retail service while the peaking units are running. Total estimated annual load is 600 MWH, which will indirectly be provided by the peaking units themselves through Colton's distribution system. No Wholesale Distribution Loads are requested at this time.

- (v) No interruptible loads are anticipated at this time.
- (vi) Southern California Edison has contract documents which clearly demonstrate that the City of Colton possesses generation and transmission resources. Incremental requirements for generation and transmission beyond the City's resources are available to the City (as they are available to and required by SCE) through the California Power Exchange, the California Independent System Operator, and other markets and third parties.
- (vii) Each site will have four, 10MW GE 10 combustion turbines operated as simple-cycle peaking units, for a total capacity of 80MW. Each unit can be operated at 0.8 leading or lagging power factor. For 2001, each unit will be limited to no more than 500 hours of operation due to the air permit requirements. In 2002 through 2006, the units will be equipped with BACT, and will not be restricted in their use based on air permitting. For these years, they will be economically dispatched as peaking units, with a projected operation of approximately 1000 hours per year. At this time, there are no known restrictions on the periods of operation. Maintenance will be performed off-peak, as required.
- (viii) Alliance Colton LLC will execute the ISO's Participating Generator Agreement and the Meter Service Agreement on or about April 1, 2001. In addition, see response to item (vi) above.
- (ix) The Service Commencement Date is June 1, 2001. The term of the requested Distribution Service is for 15 years.
- (x) Please advise if any additional information is required.

As required in Section 6.2 of SCE's WDAT, we have included a deposit of \$9132.42, equal to \$2.00 per average monthly kilowatt of generation based on 80MW of net capacity for 500 hours of operation per year (5.7% capacity factor).

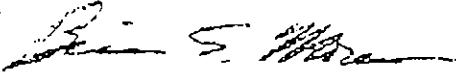
Enclosed with this letter are the equipment data sheets for the generators and transformers, and single line diagrams of both proposed generating facilities.

Please review this application for completeness, and advise if you require additional information. Due to the urgent need to site this new generation for the summer 2001 peak season, we are requesting an expedited review and approval of this application. Based on Governor Davis' executive order D-26-01, it is our understanding that we can expect a completed interconnection study within seven days. If you have any questions or need any further information, please call the undersigned at 303-730-2328.

Ms. Teri Kuniyuki  
Southern California Edison Company

Page 3  
February 22, 2001

Sincerely,  
Alliance Power, Inc.



Brian S. Moreau, P.E.  
Project Manager

Cc: Tim Trewyn, City of Colton  
James L. Michael, Alliance Power  
Brian O'Neill, Alliance Power



Mr. Bruce L. Pohlman  
Alliance Colton LLC  
7950 S. Lincoln Street, Suite 114  
Littleton, Colorado 80122

Subject: Ability to Provide Water Service

Dear Mr. Pohlman:

The City of Colton Water Department has received your verbal request that the City provide water to evaporative cooling facilities to be installed in the Century substation as part of the new electrical generating facility. A maximum of 25 gallons per minute of potable water is needed and would be provided through a new water meter and back-flow prevention device from the existing water tap at the Century substation.

The City of Colton has reviewed the Alliance Colton LLC request and is capable of providing the desired service at the Century substation.

Sincerely,



Water Utilities Manager

**ATTACHMENT F**

**ADJACENT PROPERTY OWNERS / LAND USE**

## List of Property Owners in 500' Radius of Century Substation

### Plot #77

140\* Cooley Drive LLC  
c/o 1601 N. Sepulveda Blvd. #364  
Manhattan Beach, CA 90266

### Plot #78

Frome Realty Fund-Alpha LLC  
2900-A Bristol St. Suite 201  
Costa Mesa, CA 92626

### Plot #79

Frome Realty Fund-Alpha LLC  
2900-A Bristol St. Suite 201  
Costa Mesa, CA 92626

### Plot #71

American Honda Motor Co. Inc.  
C/o John Donovan  
1919 Torrance Rd.  
Torrance, CA 90501

### Plot #70

American Honda Motor Co. Inc.  
C/o John Donovan  
1919 Torrance Rd.  
Torrance, CA 90501

### Plot #31

American Honda Motor Co. Inc.  
C/o John Donovan  
1919 Torrance Rd.  
Torrance, CA 90501

### Plot #29

San Bernadino Co. Flood Control District  
C/o R/W Engineer  
825 E. Third St.  
San Bernadino, CA 92415

### Plot #32

San Bernadino Co. Flood Control District  
C/o R/W Engineer  
825 E. Third St.  
San Bernadino, CA 92415

CenStats DataWell

Population Profile --- 1990 Census of Population and Housing

Census Tract 0071.02

San Bernardino County, California

Data displayed in profiles and comparisons of tracts are based on the 1990 state

and county geography.

PERSONS

Universe: Persons

Total.....	8,275
------------	-------

HOUSEHOLDS

Universe: Households

Total.....	3,103
------------	-------

RACE

Universe: Persons

White.....	5,861
Black.....	820
American Indian, Eskimo, or Aleut.....	76
Asian or Pacific Islander.....	648
Other race.....	870

PERSONS OF HISPANIC ORIGIN

Universe: Persons of Hispanic origin

Total.....	1,392
------------	-------

HOUSEHOLD TYPE AND RELATIONSHIP

Universe: Persons

In family households:

Householder.....	2,195
Spouse.....	1,644

Child:

Natural-born or adopted.....	2,510
Step.....	128
Grandchild.....	64
Other relatives.....	315
Nonrelatives.....	181

In nonfamily households:

Male householder:

Living alone.....	379
Not living alone.....	163

Female householder:

Living alone.....	301
Not living alone.....	65

Nonrelatives.....	269
-------------------	-----

In group quarters:

Institutionalized persons.....	61
Other persons in group quarters.....	0

AGE BY CITIZENSHIP

Universe: Persons

Under 18 years:

Native.....	2,318
-------------	-------

Foreign born:

Naturalized citizen.....	7
Not a citizen.....	63

18 years and over:

Native.....	4,941
-------------	-------

Foreign born:

Naturalized citizen.....	505
Not a citizen.....	441

EDUCATIONAL ATTAINMENT

Universe: Persons 18 years and over

Less than 9th grade.....	124
9th to 12th grade, no diploma.....	588
High school graduate (includes equivalency).	1,438
Some college, no degree.....	1,709
Associate degree.....	634
Bachelor's degree.....	912
Graduate or professional degree.....	482

SEX BY EMPLOYMENT STATUS

Universe: Persons 16 years and over

Male:

In labor force:

In Armed Forces.....	98
----------------------	----

Civilian:

Employed.....	2,287
---------------	-------

Unemployed.....	163
-----------------	-----

Not in labor force.....	360
-------------------------	-----

Female:

In labor force:

In Armed Forces.....	0
----------------------	---

Civilian:

Employed.....	1,948
---------------	-------

Unemployed.....	95
-----------------	----

Not in labor force.....	1,090
-------------------------	-------

MEDIAN HOUSEHOLD INCOME IN 1989

Universe: Households

Median household income in 1989.....	35,098
--------------------------------------	--------

PER CAPITA INCOME IN 1989

Universe: Persons

Per capita income in 1989.....	16,077
--------------------------------	--------

PER CAPITA INCOME IN 1989 BY RACE

Universe: Persons

Per capita income in 1989:

White.....	17,817
------------	--------

Black.....	9,733
------------	-------

American Indian, Eskimo, or Aleut.....	14,235
--	--------

Asian or Pacific Islander.....	12,593
--------------------------------	--------

Other race.....	13,092
-----------------	--------

PERSONS WITH INCOME IN 1989 BELOW POVERTY LEVEL

Universe: Persons for whom poverty status is determined

Percent below poverty level.....	7.9
----------------------------------	-----

RATIO OF INCOME IN 1989 TO POVERTY LEVEL

Universe: Persons for whom poverty status is determined

Under .50.....	370
.50 to .74.....	114
.75 to .99.....	157
1.00 to 1.24.....	123
1.25 to 1.49.....	356
1.50 to 1.74.....	416
1.75 to 1.84.....	12
1.85 to 1.99.....	258
2.00 and over.....	6,343

#### TENURE BY RACE OF HOUSEHOLDER

Universe: Occupied housing units

##### Owner occupied:

White.....	1,161
Black.....	49
American Indian, Eskimo, or Aleut.....	7
Asian or Pacific Islander.....	133
Other race.....	153

##### Renter occupied:

White.....	1,015
Black.....	282
American Indian, Eskimo, or Aleut.....	37
Asian or Pacific Islander.....	74
Other race.....	173

#### TENURE BY RACE OF HOUSEHOLDER

Universe: Occupied housing units with householder of Hispanic origin

##### Owner occupied:

White.....	96
Black.....	0
American Indian, Eskimo, or Aleut.....	0
Asian or Pacific Islander.....	6
Other race.....	153

##### Renter occupied:

White.....	38
Black.....	0
American Indian, Eskimo, or Aleut.....	17
Asian or Pacific Islander.....	0
Other race.....	173

Data from the STF-3A CD-ROM

Source: U.S. Census Bureau

e-mail technical questions and comments.

Created 12-Mar-01

**ATTACHMENT G**

**SITE LEASE AGREEMENT**



CITY OF COLTON  
CENTURY SUBSTATION LEASE AGREEMENT  
WITH ALLIANCE COLTON, LLC

1. PARTIES AND DATE.

This Lease Agreement ("Agreement") is made and entered into this 20<sup>th</sup> day of December, 2000 ("Effective Date") by and between the City of Colton (hereinafter referred to as "City"), a municipal corporation, and Alliance Colton, LLC (hereinafter referred to as "Lessee"), a California corporation. The City and Lessee are sometimes collectively referred to herein as the "Parties."

2. RECITALS.

2.1 Premises. The City is the owner of that certain real property located at San Bernardino County Assessors Parcel Number 027613174, at 661 S. Cooley Drive, in the City of Colton, County of San Bernardino, State of California, commonly known as the Century Substation and more particularly described in Exhibit "A" attached hereto and incorporated herein by reference ("City Property"). The City desires to lease to Lessee and Lessee desires to lease from the City certain portions of the City Property more particularly described in Exhibit "B" attached hereto and incorporated herein by reference ("Premises"). Lessee shall have the right to use the Premises for the purpose of installing, removing, replacing, modifying, maintaining, and operating electric generation facilities and equipment (collectively, "Lessee Facilities") in exchange for due and adequate consideration, the receipt and sufficiency of which are acknowledged by the Parties and further described and set forth in this Agreement.

2.2 Access. During the Term of this Agreement, as defined herein, Lessee shall have supervised access, including ingress and egress, to the Premises to install, operate, maintain and remove the Lessee's Facilities, as defined below, under the following conditions: (1) Lessee shall give 24 hours prior written notice to City when requesting access (Written notice can include the lessee submitting a monthly schedule to the City identifying the timetable for access to Premises for routine operations and maintenance); (2) at the City's option, a City representative shall remain on the Premises during the period of access to Lessee; and (3) prior to and during the period of access, Lessee shall not be in default of any obligation under this Agreement. In the event the Lessee Facilities fail to operate, Lessee may have immediate supervised access to the Premises, provided such access does not disrupt City activities. The City shall not unreasonably deny access to Lessee in the event of such an emergency. Access will be provided to Lessee in those portions of the City Property that are specifically designed for access, ingress, and egress to the Premises.

## EXHIBIT "A"

### DESCRIPTION OF CITY PROPERTY

[See Also Attached Aerial Image and Plot Plan]

The Century Substation lies within City owned property, San Bernardino County Assessors Parcel Number 027613174, at 661 S. Cooley Drive, in the City of Colton, California, and is legally described as: **That portion of Lot 6, Block 64, of Rancho San Bernardino, in the City of Colton, County of San Bernardino, State of California, as per map recorded in Book 7 of Maps, Page 29, official records of said County.** The elevation of the property is approximately 946 feet above sea level. To the northwest is the Santa Ana River. To the northeast is vacant Industrial/Commercial zoned land. To the southeast and southwest is occupied Commercial zoned land.

The Substation and transmission lines connecting it to the Colton system are designed to accommodate three 20/26/33 MVA 66000:12470 volt power transformers spaced along a common bus. Two transformers are currently installed. Maximum load on the station to date has been approximately 25 MW. The substation provides power to residential, commercial, and industrial loads on the east side of the City. Existing switchgear facilities are arranged in a single-bus configuration, and no provisions for additional circuit breakers exist in the present switchgear buildings. There is sufficient space for the location of multiple gas turbine or reciprocating engine powered generators.

### 3. TERMS.

3.1 Term. The term ("Term") of this Agreement shall be for fifteen (15) years commencing upon January 31, 2001 (the "Commencement Date") and expiring on January 30, 2016, unless terminated earlier, as provided herein.

3.2. Option to Renew. Provided Lessee is not in material default under any of the terms of this Agreement, Lessee may request renewal of this Agreement on the terms and conditions herein contained for 2 additional terms ("Renewal Term") of 5 year periods upon written notice to City of Lessee's intent to do so at least one hundred eighty (180) days prior to the expiration of the Term or any Renewal Term. Provided Lessee is not in material default under any of the terms of this Agreement, City shall grant the request for renewal within 90 days of receipt of Lessee's written notice requesting renewal. If the City does not respond to the written notice, the additional terms requested shall be deemed to be approved. The terms and conditions for each Renewal Term shall be the same terms and conditions of this Agreement, except that the consideration payable for the Renewal Terms shall be in accordance with the provisions of Section 3.6 herein.

### 3.3 Facilities; Utilities; Access.

3.3.1 Subject to the provisions of Sections 2.2, 3.9.3 and 3.10 of this Agreement, Lessee has the right to erect, maintain and operate on the Premises the Lessee Facilities, including, without limitation, generating equipment and associated electrical and gas auxiliary equipment. The Lessee Facilities shall be used for electric generation purposes, and for no other purpose. A schematic of the Lessee Facilities ("Schematic") is attached as Exhibit "C" hereto and incorporated herein by reference. Lessee shall not deviate from the approved Schematic without the prior written approval of City. Provided all work shall comply with the Schematic, Lessee has the right to install the Lessee Facilities on the Premises. All of Lessee's construction and installation work shall be performed at Lessee's sole cost, expense and liability and in conformance with the latest editions of the "Green Book" or the Standard Specifications for Public Works construction, as written and promulgated by the Joint Cooperative Committee of the Southern California Chapter of the American Public Works Association, the National Electrical Code, (NEC applicable to 600V class and below only) the National Electrical Safety Code, and CPUC General Orders 95 and 128. Lessee agrees to obtain air quality permits, and other construction permits and to furnish and transport all necessary labor, materials, tools, implements, and appliances required to install and completely finish the Lessee Facilities in a good and workmanlike manner, to the satisfaction and approval of City, free of any and all liens and claims of laborers, materialmen, suppliers, and subcontractors, and in conformity with the Schematic and all applicable state, county, and municipal laws, codes, and regulations, including applicable standards of the American National Standards Institute, the American Society of Mechanical Engineers, and the Institute of Electrical and Electronics Engineers. The site is zoned for electrical infrastructure, which includes power generation. The City will be designated the lead agency to secure a finding of no significant impact or negative declaration for environmental impact. ←

*Cooley*  
EXHIBIT "B"

**DESCRIPTION OF PREMISES** Lessee's premises at 661 S. Cooley, as described in Exhibit "A", shall be bounded by the following lines: Commencing at the northeast corner of the City Property, thence 35 feet west and 19.71 feet south to a Point of Beginning, thence northwesterly 46.23 feet to a point 19.71 feet north and 41.8 feet west of the Point of Beginning, thence southwest 395.17 feet, thence southerly 125.08 feet to a point 545.23 feet west and 41.16 feet south of the Point of Beginning, thence northeasterly 363.26 feet, thence east 98.22 feet to a point 120.41 feet south and 118.38 feet west of the Point of Beginning, thence north 47.35 feet to a point 115.79 feet south and 81.38 feet west of the Point of Beginning, thence northwesterly 86.2 feet, thence northeasterly 81.38 feet to the Point of Beginning.

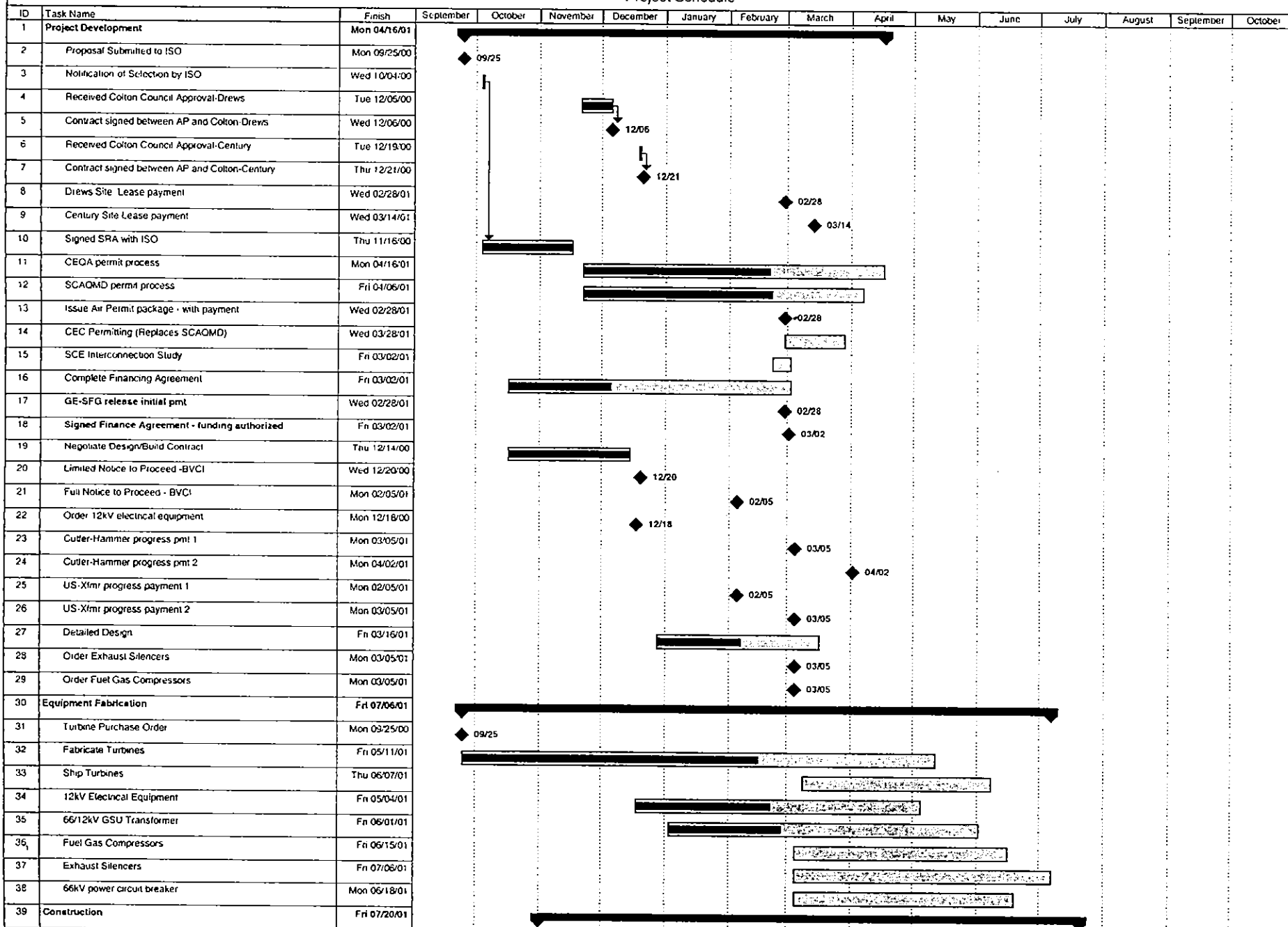
(ALSO SEE ATTACHED PLOT PLAN 756-E-2.3)

**ATTACHMENT H**

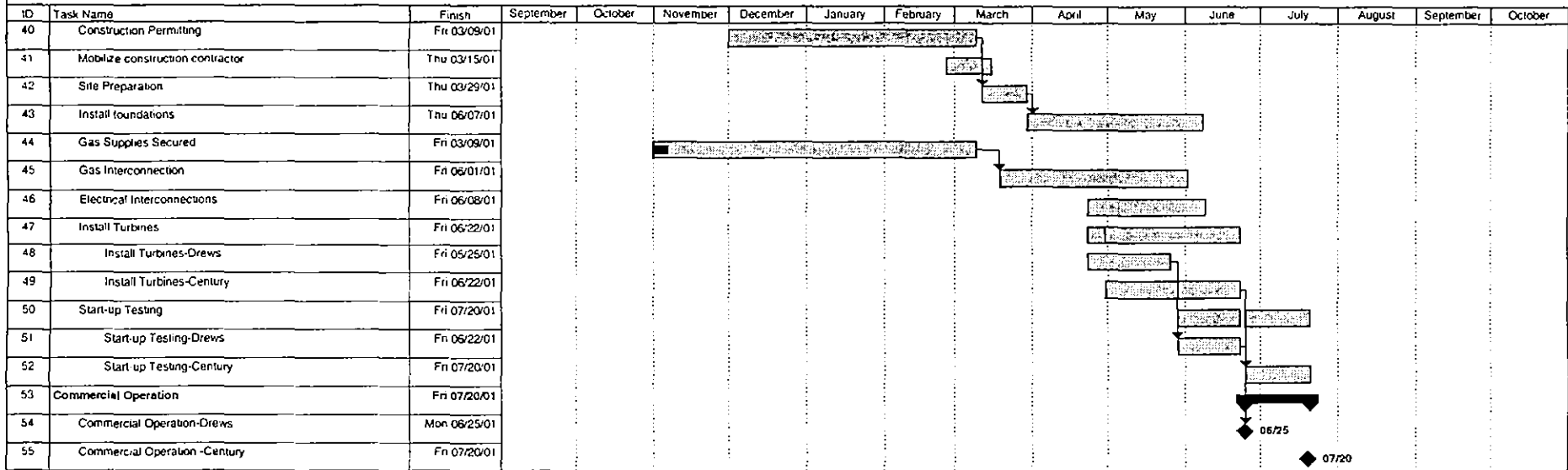
**CONSTRUCTION SCHEDULE**

# California Department of Water Resources

## Project Schedule



# California Department of Water Resources Project Schedule



**ATTACHMENT I**

**SCAQMD PERMIT APPLICATION**



**PERMIT APPLICATION REPORT  
FOUR 10.5MW SIMPLE CYCLE TURBI.  
CENTURY SUBSTATION**

**PREPARED FOR:**

Alliance Power, Inc.  
13934 Eberle Road  
Bakersfield, California 93313

**FOR SUBMITTAL TO:**

South Coast Air Quality Management District  
21865 East Copley Drive  
Diamond Bar, California 91765

**PREPARED BY:**

**SCEC**

Air Quality Specialists  
1582-1 N. Batavia Street  
Orange, California 92867  
(714) 282-8240

March, 2001

**ALLIANCE POWER INC**  
OPERATING ACCOUNT  
7950 S LINCOLN ST STE 114 303-730-2328  
LITTLETON, CO 80122

**US BANK**  
24-HOUR BANKING  
1-303-585-8585

10300

23-2  
1020 164

3/6/2001

PAY TO THE  
ORDER OF

South Coast Air Quality Management Distri

\$ \*\*11,361.70

Eleven Thousand Three Hundred Sixty-One and 70/100\*\*\*\*\*

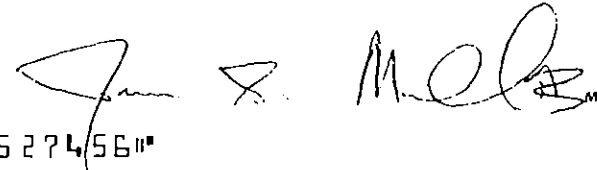
DOLLARS

South Coast Air Quality Management Distri  
21865 E. Copley Drive  
Diamond Bar, CA 91765

MEMO

Permit Processing Fee - Century Substation

⑈010300⑈ ⑆102000021⑆103656527456⑈



**ALLIANCE POWER INC**

South Coast Air Quality Management Distri  
03/06/2001 Bill #Century Sub

3/6/2001

10300

11,361.70

US Bank Operating- Permit Processing Fee - Century Substation

11,361.70

Security features included. Details on back

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APPENDIX A	SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT APPLICATION FOR PERMIT TO CONSTRUCT FORMS (COPIES)
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APPENDIX C	EQUIPMENT INFORMATION
APPENDIX D	CRITERIA AND TOXIC POLLUTANT EMISSIONS INFORMATION
APPENDIX E	AMBIENT AIR QUALITY IMPACT ANALYSIS AND SCREENING RISK ASSESSMENT INFORMATION

## SECTION 1.0

### INTRODUCTION

#### 1.1 General Introduction

Alliance Colton LLC (Alliance) is submitting permit applications to construct and operate four simple cycle 10.5 MW turbines. The proposed facility is located at 661 South Cooley Drive in the City of Colton. Construction of the project is to begin as soon as possible in order for the turbines to be operational by August 1, 2001. Alliance requests, therefore, that SCAQMD take steps to expedite processing of the applications. The permit applications have been prepared with assistance from SCEC and are being submitted in conjunction with applications to the California Energy Commission (CEC) under the 21-day emergency siting process.

#### 1.2 Project Summary

The Century substation project is one of two projects proposed by Alliance in the City of Colton. The properties are owned by the City of Colton and will be leased to Alliance for the purpose of generating electricity. Alliance will be generating power under agreement with the California Independent System Operator (ISO). ISO and the California Energy Commission have determined that the region surrounding Colton will be vulnerable to power interruptions because the infrastructure to transport electricity from outside the region is not adequate to meet local power demands. Because of this local generation capability in the region is required to serve local electricity users. The proposed facilities are critical to power availability in the region both in terms of the amount of electricity generated and in the ability to distribute power to the local population.

The proposed facility will be constructed and operated in two phases. The first phase will commence on August 1, 2001. During the first phase, Alliance proposes to operate the turbines with dry low-emission combustion technology capable of meeting NO<sub>x</sub> levels of 25 ppmv. CO emissions will be limited to 20 ppmv. The facility will qualify as a RECLAIM NO<sub>x</sub> facility, but not a Title V facility. Alliance will install RECLAIM-compliant continuous emission monitoring systems or parametric monitoring systems to quantify and report mass NO<sub>x</sub> emission rates. Until such installations are complete, the units will be subject to RECLAIM protocol for process units.

The second phase will commence upon installation of Catalytica Combustion Systems' (Catalytica) Xonon technology or an alternative technology deemed to meet BACT for prime power units. Catalytica has committed to provide Alliance with its final delivery schedule of retrofit packages for the turbines by September 30, 2001. Catalytica, General Electric and Alliance anticipate being able to install begin installing Xonon in July of 2002, with final installation to be complete by February 1, 2003. The ISO – Alliance contract allows Alliance to install during the summer of 2002. If Catalytica cannot commit to install Xonon within a reasonable period, Alliance will proceed to purchase and install selective catalytic reduction and

CO oxidation systems to meet BACT under phase two of the project.

During phase two of the project, potential operations will increase only to the point that the facility will remain a minor source, with respect to Title V, and to the point that emission offsets for pollutants other than NO<sub>x</sub> can be avoided. Catalytica, General Electric and Alliance anticipate that Xonon will result in NO<sub>x</sub> levels below 5ppmv and CO levels below 10 ppmv. General Electric has not provided emission rate guarantees for PM<sub>10</sub>. EPA AP-42 emission factors for PM<sub>10</sub> indicate maximum annual operations of 2,500 hours before the facility's annual potential emissions would reach four tons. These factors, however, reflect the use of water / steam injection, rather than dry combustion technology and likely overstate potential emissions from the facility. Final permitted annual operating hours will be determined based upon initial source tests to determine actual PM<sub>10</sub> emission rates.

### **1.3 Technical Project Contacts**

Brian O' Neill, Vice President  
Alliance Power, Inc.  
13934 Eberle Rd.  
Bakersfield, CA 93313

Phone: (661) 836-9873  
Fax: (661) 836-9853

Karl Lany  
SCEC  
1582-1 N. Batavia St.  
Orange, CA 92867

Phone: (714) 282-8240  
Fax: (714) 282-8247

## **SECTION 2.0**

### **FACILITY AND EQUIPMENT INFORMATION**

#### **2.1 Facility Description**

The Century Substation is owned and operated by the publicly owned City of Colton utility. The city is leasing the property to Alliance, specifically for the purpose of generating power. The facility is located in an area of the City of Colton that is characterized by light industrial and rural land uses. The facility location is listed below. Because applications are also being submitted to CEC, the CEC environmental impact assessment will serve as a substitute for the CEQA process. Appendix B contains facility maps, plot plans and the City's CEQA determination.

Alliance Colton LLC  
Century Substation  
661 S. Cooley Drive  
Colton, California

#### **2.2 Equipment Description**

Alliance is proposing to construct four General Electric Model 10B1 gas turbines, rated at 10.5 MW. Table 2-1 contains specifications for the units. Additional equipment information is contained in Appendix C.

**Table 2-1  
Equipment Summary  
10.5 MW Gas Turbine  
Century Substation**

Specification	Description
Manufacturer:	General Electric
Model:	10B1
Rating:	10.5 MW
Fuel :	Pipeline Natural Gas
Fuel Consumption:	123,000 cf/hr
Exhaust Flow:	72,904 DSCFM, 199,537 ACFM
Stack Height:	52 ft.
Stack Dimensions:	11 ft. by 9 ft.

## SECTION 3.0

### EMISSIONS INFORMATION

#### 3.1 Criteria Pollutant Emissions Summary

Phase 1 estimated criteria pollutant emissions are summarized in Table 3-1 for each unit, and Table 3-2 for the entire facility. Phase 1  $\text{NO}_x$  and CO emission factors were provided by General Electric and reflect anticipated achievable emission rates using dry combustion technology. ROG,  $\text{PM}_{10}$ , and  $\text{SO}_x$  emission factors were derived from EPA AP-42, dated April 2000. An average operating schedule of 24 hours per day, 30 days per month, and 423 hours per year at 100% rated capacity was used for all maximum PTE calculations. Average operations reflect 5 hours per day, 20 days per month, and 423 hours per year. Actual operations will be dictated by the amount of  $\text{NO}_x$  emissions that are quantified in accordance with RECLAIM protocol. Additional emissions information for Phase 1 is included in Appendix D.

Total potential daily  $\text{NO}_x$  emissions for the Facility are 283 pounds and total potential annual emissions for the facility are 9.9 tons during Phase 1. Potential  $\text{NO}_x$  emissions indicate that the Facility will be classified as a RECLAIM facility, but not as a Title V facility during phase one of the project.

Phase 2 estimated criteria pollutant emissions are summarized in Table 3-3 for each unit, and Table 3-4 for the entire facility. Phase 2  $\text{NO}_x$  and CO emission factors were provided by General Electric and reflect anticipated guaranteed emission rates using Xonon combustion technology. ROG,  $\text{PM}_{10}$ , and  $\text{SO}_x$  emission factors were derived from EPA AP-42, dated April 2000. A maximum operating schedule of 24 hours per day, 30 days per month, and approximately 1,750 to 3,900 hours per year at 100% rated capacity was used for all maximum calculations. Annual operating hours are dependent upon  $\text{PM}_{10}$  emission factors and will be specified upon initial sources tests. Projected Xonon emission rates, AP-42 emission rates and emission calculation spreadsheets for phase 2 of the project are included in Appendix D.

#### 3.2 Toxic Pollutant Emissions Summary

Toxic pollutant emissions from the proposed project were derived from factors provided by SCAQMD for natural gas fired combustion turbines. Table 3-5 provides a summary of the factors and emission estimates. Additional toxic emissions information can be found in Appendix D.



**Table 3-1**  
**Phase 1**  
**Criteria Pollutant Emissions Summary**  
**One Gas Turbine**  
**Century Substation**

	U-EF lb./MMBtu	C-EF lb./MMBtu	AHU lbs./hr	AHC Lbs./hr	MHU lbs./hr	MHC lbs./hr	MDU lbs./day	MDC lbs./day	AA Lbs./yr.	APTE tons/yr.	30DA lbs./day
<b>ROG</b>	0.0030	0.0030	0.33	0.33	0.35	0.35	8.4	8.4	140	0.07	8.4
<b>UNROG</b>	0.0089	0.0089	0.98	0.98	1.04	1.04	0.0	24.8	416	0.22	24.8
<b>SOx</b>	0.0034	0.0034	0.38	0.38	0.40	0.40	9.5	9.5	159	0.08	9.5
<b>CO</b>	0.0495	0.0495	5.47	5.47	5.76	5.76	138.2	138.2	2313	1.22	138.2
<b>PM10</b>	0.0066	0.0066	0.73	0.73	0.77	0.77	18.4	18.4	308	0.16	18.4
<b>NOx</b>	0.1016	0.1016	11.22	11.22	11.81	11.81	283.5	283.5	4747	2.50	283.5

**Table 3-2**  
**Phase 1**  
**Criteria Pollutant Emissions Summary**  
**Entire Facility**  
**Century Substation**

	U-EF lb./MMBtu	C-EF lb./MMBtu	AHU lbs./hr	AHC Lbs./hr	MHU lbs./hr	MHC lbs./hr	MDU lbs./day	MDC lbs./day	AA Lbs./yr.	APTE tons/yr.	30DA lbs./day
<b>ROG</b>	0.0030	0.0030	1.33	1.33	1.40	1.40	33.5	33.5	561	0.30	33.5
<b>UNROG</b>	0.0089	0.0089	3.93	3.93	4.14	4.14	0.0	99.4	1664	0.88	99.4
<b>SOx</b>	0.0034	0.0034	1.50	1.50	1.58	1.58	38.0	38.0	636	0.33	38.0
<b>CO</b>	0.0495	0.0495	21.88	21.88	23.03	23.03	552.7	552.7	9254	4.87	552.7
<b>PM10</b>	0.0066	0.0066	2.92	2.92	3.07	3.07	73.7	73.7	1234	0.65	73.7
<b>NOx</b>	0.1016	0.1016	44.89	44.89	47.25	47.25	1134.0	1134.0	18987	9.99	1134.0

**Table 3-3**  
**Phase 2**  
**Criteria Pollutant Emissions Summary**  
**One Gas Turbine**  
**Century Substation**

	U-EF lb./MMBtu	C-EF lb./MMBtu	AHU lbs./hr	AHC Lbs./hr	MHU lbs./hr	MHC lbs./hr	MDU lbs./day	MDC lbs./day	AA Lbs./yr.	APTE tons/yr.	30DA lbs./day
<b>ROG</b>	0.0030	0.0030	0.3315	0.3315	0.3489	0.3489	8.4	8.4	592	0.31	8.4
<b>UNROG</b>	0.0089	0.0089	0.98	0.98	1.04	1.04	0.0	24.8	1755	0.92	24.8
<b>SOx</b>	0.0034	0.0034	0.3756	0.3756	0.3954	0.3954	9.5	9.5	671	0.35	9.5
<b>CO</b>	0.0248	0.0248	2.7400	2.7400	2.8842	2.8842	69.2	69.2	4891	2.57	69.2
<b>PM10</b>	0.0066	0.0066	0.7292	0.7292	0.7676	0.7676	18.4	18.4	1302	0.69	18.4
<b>NOx</b>	0.0240	0.0240	2.6557	2.6557	2.796	2.796	67.1	67.1	4740	2.49	67.1

\* Based upon annual operating limits to be determined after source tests are conducted.

**Table 3-4**  
**Phase 2**  
**Criteria Pollutant Emissions Summary**  
**Entire Facility**  
**Century Substation**

	U-EF lb./MMBtu	C-EF lb./MMBtu	AHU lbs./hr	AHC lbs./hr	MHU lbs./hr	MHC lbs./hr	MDU lbs./day	MDC lbs./day	AA Lbs./yr.	APTE tons/yr.	30DA lbs./day
<b>ROG</b>	0.0030	0.0030	1.33	1.33	1.40	1.40	33.5	33.5	2367	1.25	33.5
<b>UNROG</b>	0.0089	0.0089	3.93	3.93	4.14	4.14	0.0	99.4	7021	3.70	99.4
<b>SOx</b>	0.0034	0.0034	1.50	1.50	1.58	1.58	38.0	38.0	2682	1.41	38.0
<b>CO</b>	0.0248	0.0248	10.96	10.96	11.54	11.54	276.9	276.9	19564	10.30	276.9
<b>PM10</b>	0.0066	0.0066	2.92	2.92	3.07	3.07	73.7	73.7	5206	2.74	73.7
<b>NOx</b>	0.0240	0.0240	10.62	10.62	11.18	11.18	268.4	268.4	18962	9.98	268.4

\* Based upon annual operating limits to be determined after source tests are conducted.

**Table 3-5  
Toxic Pollutant Emissions Summary  
Century Substation**

Compound	Turbine Emission Factor		Turbine Emissions	
	(lb./MMcf)	(lb./hr)	(lb./yr.)	(tons/yr.)
Acetaldehyde	0.037	0.00410	35.90	0.01795
Acrolein	0.009	0.00100	8.73	0.00437
Benzene	0.011	0.00125	10.96	0.00548
Formaldehyde	0.094	0.01041	91.21	0.04560
PAH'S **	0.001	0.00010	0.97	0.00049
Toluene	0.073	0.00804	70.44	0.03522
Xylene	0.030	0.00330	28.91	0.01446

Notes:

1. Emission factors provided by SCAQMD.

## **SECTION 4.0**

### **AIR QUALITY IMPACT ANALYSIS AND SCREENING RISK ASSESSMENT**

#### **4.1 Ambient Air Quality Impact Analysis**

An ambient air quality impact analysis (AQIA) was conducted in accordance with SCAQMD Rule 1303. The purpose of the AQIA is to assist in determining if the proposed turbines will result in an unacceptable level of emission concentrations in the area surrounding the project site. NO<sub>2</sub> and CO are typically the pollutants of greatest concern for natural-gas combustion projects.

SCEC completed a mid-tier AQIA for the project using the ISCST3 computer model. The model was set up with flat terrain grid extending 5000 meters from the project site and operated with normalized emission rates of 1.0 gram per second. Actual meteorological data from the Redlands weather station was used and the model was executed using non-regulatory default options. In addition, no significant buildings were located on-site, so building induced down wash and wake effects were not factors.

The results of the air dispersion modeling indicate that impacts are within the SCAQMD significance levels for air quality impacts. The results of the AQIA are summarized below in Table 4-1 and 4-2. Table 4-1 provides the summary based upon 500 operating hours per year. Table 4-2 provides a summary based upon 8760 operating hours per year with additional NO<sub>x</sub> and CO emission reductions. Additional modeling information can be found in Appendix E.

#### **4.2 Screening Risk Assessment**

A tier 3 screening risk assessment was conducted in accordance with SCAQMD 1401 to evaluate the project's potential cancer, chronic and acute health risks. The assessment included the use of ISCST3 to determine down-wind pollutant concentrations. These concentrations were then used with SCAQMD calculation methodologies to determine health risks.

The results of the screening risk assessment indicate that the proposed project meets the standards set forth in SCAQMD Rule 1401 for cancer, chronic, and acute health risks. The results of the assessment are summarized in Table 4-3. Additional risk assessment information can be found in Appendix E.

**Table 4-1**  
**Summary of Air Quality Impact Analysis**  
**Phase 1 - 500 Operating Hours/Year**  
**Century Substation**

Pollutant	Averaging Time	Emission Rate (lbs./hr)	Maximum Impact ( $\mu\text{g}/\text{m}^3$ )	SCAQMD / NSR Allowable Significant Change ( $\mu\text{g}/\text{m}^3$ )
NO <sub>x</sub>	1 – Hour	11.8	6.8	20.0
NO <sub>x</sub>	Annual (500 hours)	8.4	0.01	1.0
CO	1 – Hour	7.0	4.1	1100.0
CO	8 – Hour	7.0	2.7	500.0
PM	24 – Hour	0.8	0.1	2.5
PM <sub>10</sub>	Annual (500 hours)	0.8	0.001	1.0

Notes:

1. NO<sub>x</sub> annual (500 hours) emission average reflects 25 ppmv and the 0.71 NO<sub>x</sub> to NO<sub>2</sub> conversion factor.

**Table 4-2**  
**Summary of Air Quality Impact Analysis**  
**Phase 2 - 8760 Operating Hours/Year**  
**Century Substation**

Pollutant	Averaging Time	Emission Rate (lbs./hr)	Maximum Impact ( $\mu\text{g}/\text{m}^3$ )	SCAQMD / NSR Allowable Significant Change ( $\mu\text{g}/\text{m}^3$ )
NO <sub>x</sub>	1 – Hour	2.4	1.4	20.0
NO <sub>x</sub>	Annual (8760 hours)	1.7	0.12	1.0
CO	1 – Hour	7.0	4.1	1100.0
CO	8 – Hour	7.0	3.2	500.0
PM	24 – Hour	0.8	0.2	2.5
PM <sub>10</sub>	Annual (8760 hours)	0.8	0.055	1.0

**Notes:**

1. NO<sub>x</sub> annual (8760 hours) emission average reflects 5 ppmv and the 0.71 NO<sub>x</sub> to NO<sub>2</sub> conversion factor.

**Table 4-3**  
**Summary of Screening Risk Assessment**  
**Century Substation – 8760 Hours/Year**

Compound	MICR Summary		HIC Summary		HIA Summary	
	Unit Risk Factor	MICR	REL Factor	HIC	REL Factor	HIA
Acetaldehyde	2.70E-06	7.85E-10	9.00E+00	0.00003	n/a	n/a
Acrolein	n/a	n/a	n/a	n/a	1.90E-02	0.03065
Benzene	2.90E-05	2.58E-09	6.00E+00	0.000015	1.30E+03	0.00000
Formaldehyde	6.00E-06	4.43E-09	3.00E+00	0.000246	9.40E-02	0.06470
PAH'S *	1.70E-03	1.70E-07	n/a	n/a	n/a	n/a
Toluene	n/a	n/a	3.00E+02	0.000002	3.70E+04	0.00000
Xylene	n/a	n/a	7.00E+02	0.000000	2.20E+04	0.00000
	Total MICR	1.77E-07	Total HIC	0.00030	Total HIA	0.09535

## SECTION 5.0

### REGULATORY INFORMATION

#### 5.1 SCAQMD Regulatory Analysis

The following is a discussion of compliance issues and applicable SCAQMD Rules and Regulations.

##### Regulation II

###### Rule 212: Standards for Approving Permits:

This equipment is not located within 1000 feet of a school, but the proposed facility will have potential NO<sub>x</sub> emissions during its first two years of operation that are in excess of the levels specified in Rule 212 (g). Alliance requests that any public notification regarding the proposed project be made as soon as possible to ensure swift permit processing.

##### Regulation IV

###### Rule 401: Visible Emissions:

The opacity limits established in Rule 401 are not expected to be exceeded since the equipment will be fired on natural gas. Compliance with Rule 401 is expected.

###### Rule 402: Nuisance:

Based upon experience with similar equipment, operation of this system is not expected to emit air contaminants so as to cause a nuisance. Compliance with Rule 402 is expected.

###### Rule 431.1 Sulfur Content of Gaseous Fuels:

The equipment proposed for this project will be fired on pipeline quality natural gas. Compliance with Rule 431.1 is expected.

##### Regulation IX

###### Subpart GG – Standards of Performance for Stationary Gas Turbines:

Based upon performance characteristics for the turbine model, the maximum NO<sub>x</sub> concentration allowable under Subpart GG is 0.0235% of exhaust volume at 15% O<sub>2</sub>. The turbines are expected to emit NO<sub>x</sub> at a rate of less than 0.0025% of exhaust volume at 15% O<sub>2</sub>. Compliance with Subpart GG is expected.

##### Regulation XI

###### Rule 1134: Emissions of Oxides of Nitrogen from Stationary Gas Turbines



New turbines and RECLAIM sources are exempt from Rule 1134.

### **Regulation XIII**

#### **Rule 1303 and Rule 2005: Best Available Control Technology (BACT):**

Achieved in practice BACT for simple cycle prime power gas turbines generally consists of 5 ppmv for NO<sub>x</sub> and 10 ppmv for CO. Catalytica Xonon is generally capable of meeting these BACT levels and will be available for installation prior to any operation of the turbines starting in the summer of 2002 and will be fully installed by February 1, 2003.

In the interim period, Alliance will operate the turbines with General Electric's dry combustion technology, capable of meeting 25 ppmv NO<sub>x</sub> and 20 ppmv CO. At this time, these levels are generally considered to be the lowest achievable emission rates achievable without the use of add-on emission control systems. It should be noted that any add-on control systems that could normally be installed on the turbines, whether Xonon or SCR, cannot be delivered prior to the 2001 operating season.

SCAQMD BACT guidelines specify clean fuel policy as BACT for emergency turbines. The proposed phase one project will operate under severe permit restrictions, much in the same manner as an emergency turbine would. Unlike typical emergency turbines, however, operations under phase one of the project would be subject to a sunset date in the permit that would limit project duration. Sections A and C of SCAQMD BACT policy specify that SCAQMD can make less stringent BACT determinations based upon project operation hours and upon project duration. The proposed operating hour limits, the limited duration of phase one of the project, and the environmental and social implications of power outages that can be prevented warrant an interim BACT determination that favors dry combustion technology with NO<sub>x</sub> at 25 ppmv.

#### **Rule 1303 and Rule 2005: Modeling:**

Modeling as required by SCAQMD Rules 1303 and 2005 was performed to demonstrate no unacceptable increase in ambient NO<sub>2</sub>, CO and PM emission concentrations. Detailed information regarding the modeling for this project can be found in Section 4.0 and Appendix E of this report.

#### **Rule 1303 and Rule 2005: Emission Offsets:**

The estimated maximum annual emissions from the proposed equipment, combined with limits upon annual operating hours will be below the emission offsets threshold stipulated in Rule 1303(b)(2). Offsets for CO, ROG, SO<sub>x</sub> and PM<sub>10</sub> will not be required.

Total facility NO<sub>x</sub> emissions are expected to exceed four tons per year. RECLAIM RTCs will be secured for the first year of operations prior to start-up. Alliance will coordinate with CARB to obtain emission offsets through the emergency offset bank and will supplement any offset needs through the open RECLAIM market.

## **Regulation XIV**

### **Rule 1401: New Source Review of Toxic Air Contaminants:**

As required in SCAQMD Rule 1401, a Tier III Risk Assessment was performed to demonstrate compliance with Rule 1401(d). Detailed information regarding the risk assessment for this project can be found in Section 4.0 and Appendix E of this report.

## **SECTION 6.0**

### **PROPOSED PERMIT LANGUAGE**

#### **6.1 Proposed Permit Conditions**

1. On or before October 31, 2001, operator shall notify district of selected emission control technology capable of meeting BACT achieved in practice standards for prime power units. Operator shall also submit to the district an implementation plan and supporting documentation to demonstrate the viability of the selected technology.
2. Prior to the installation of emission control equipment, turbine operations will be subject to the following restrictions:
  - a. Operation of turbines at this facility shall not result in NO<sub>x</sub> emission levels in excess of 10 tons per year, measured in accordance with RECLAIM protocol for process units using a concentration limit of 25 ppmv or through the use of a RECLAIM-compliant CEMs or parametric monitoring system.
  - b. Operation of this turbine without the installation of NO<sub>x</sub> and CO emission reduction technology shall cease on February 1, 2003.
3. Once emission reduction technology is installed, turbine operations shall be subject to the following restrictions:
  - a. Operation of turbines at this facility shall not result in NO<sub>x</sub> emission levels in excess of 10 tons per year, measured in accordance with RECLAIM protocol for process units using a concentration limit of 5 ppmv or through the use of a RECLAIM-compliant CEMs or parametric monitoring system.

## **APPENDIX A**

### **SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT PERMIT TO CONSTRUCT APPLICATION FORMS (COPIES)**

- **(1) FORM XPP**
- **(4) FORM 400-A**
- **(4) FORM 400-E-12**
- **(1) FORM CEQA**



South Coast Air Quality Management District  
P. O. Box 4944  
Diamond Bar, CA 91765  
(909) 396-2000

Form 400-A must accompany all submittals.

# FORM 400 - XPP (Century Substation)

COPY

## Section I - Facility/Application Information

1. Business Name: **ALLIANCE COLTON, LLC.**

Facility ID:

2. The requested application is for a(n): Date of Occurrence: 2/15/01

- a. ☒ New Construction
- b. ☐ Change of Location
- c. ☐ Modification of Equipment/Process
- d. ☐ Existing Equipment with Expired Permit
- e. ☐ Existing Equipment Operating without a Permit; Initial Operation Date:
- f. ☐ Change of Condition(s); Specify the change of condition(s) requested:
- g. ☐ Change of Operator; List previous name of operator and Facility ID #:

Equipment Description: **GAS TURBINE, <50MW (4 UNITS)**

Application No.:

3. I hereby request Express Permit Processing for this application.

4. I understand that this request will incur additional fees.

5. This request is not cancelable once engineering review has been initiated.

6. Express Permit Processing neither guarantees action by any specific date nor does it guarantee permit approval.

## Section II - Applicant Certification Statement

I HEREBY CERTIFY THAT ALL INFORMATION CONTAINED HEREIN AND INFORMATION SUBMITTED WITH THIS APPLICATION IS TRUE AND CORRECT.

SIGNATURE OF RESPONSIBLE OFFICIAL OF FIRM:

TITLE OF RESPONSIBLE OFFICIAL OF FIRM:

TYPE OR PRINT NAME OF RESPONSIBLE OFFICIAL OF FIRM:

**BRIAN O'NEILL**

RESPONSIBLE OFFICIAL'S TELEPHONE NUMBER

**(661) 836-9873**

DATE SIGNED:

I HEREBY CERTIFY THAT ALL INFORMATION CONTAINED HEREIN AND INFORMATION SUBMITTED WITH THIS APPLICATION IS TRUE AND CORRECT.

SIGNATURE OF PREPARER:

TITLE OF PREPARER:

**V.P. SCEC**

TYPE OR PRINT NAME OF PREPARER:

**KARL A. LANY**

PREPARER'S TELEPHONE NUMBER

**(714) 282-8240**

DATE SIGNED:

AQMD USE ONLY	APPLICATION/TRACKING #	PROJECT #	TYPE B C D	EQUIPMENT CATEGORY CODE: /	FEE SCHEDULE: \$	VALIDATION
	ENG. A R DATE	ENG. A R DATE	CLASS I III IV	ASSIGNMENT UNIT ENGINEER	ENF. SECT.	CHECK/MONEY ORDER AMOUNT \$

FORM 400 XPP, Rev. 08/98

AQMD USE ONLY	APPLICATION/TRACKING #	PROJECT #	TYPE B C D	EQUIPMENT CATEGORY CODE: /	FEE SCHEDULE: \$	VALIDATION
	ENG. A R DATE	ENG. A R DATE	CLASS I III IV	ASSIGNMENT UNIT ENGINEER	ENF. SECT.	CHECK/MONEY ORDER AMOUNT \$

FORM 400 E - 13, Rev. 10/97



South Coast Air Quality Management District  
P. O. Box 4944  
Diamond Bar, CA 91765  
(909) 396-2000

# APPLICATION FOR PERMIT TO CONSTRUCT AND PERMIT TO OPERATE FORM 400 - A (Century - GT No.1)

**COPY**

**Non-Title V Facilities:** This form must be accompanied by one or more 400-E-xx series form(s). Complete this side of form only.

**Title V Facilities:** Complete both sides of this form. Include additional forms as necessary.

NC/NOV NUMBER:

INSPECTOR

SECTOR

ISSUE DATE

## Section I - Company Information

LEGAL NAME OF OPERATOR:

ALLIANCE COLTON, LLC.

☐ IRS OR ☐ S. S. NUMBER

PERMIT TO BE ISSUED TO (SEE INSTRUCTIONS):

ALLIANCE COLTON, LLC. - CENTURY SUBSTATION

BUSINESS MAILING ADDRESS:

7950 S. LINCOLN ST. SUITE 114, LITTLETON, CO 80122

PERMIT MAILING ADDRESS, IF DIFFERENT FROM BUSINESS MAILING ADDRESS:

TYPE OF ORGANIZATION

☒ Corporation

☐ Limited Partnership

☐ Government Entity

☐ Individual

☐ General Partnership

☐ Other (Fill in):

ARE YOU A SMALL BUSINESS?

(SEE INSTRUCTIONS)

☐ Yes

☒ No

AVERAGE ANNUAL GROSS RECEIPTS \$

NUMBER OF EMPLOYEES:

IS YOUR BUSINESS 51 % OR MORE

WOMAN/MINORITY OWNED? ☐

Yes

☒ No

THIS SECTION IS REQUIRED FOR ALL APPLICATIONS FOR NEW CONSTRUCTION OR MAJOR MODIFICATIONS.

ARE ALL MAJOR SOURCES UNDER SAME OWNERSHIP IN CALIFORNIA IN COMPLIANCE WITH  
FEDERAL, STATE, AND LOCAL AIR POLLUTION CONTROL RULES? ☒ Yes ☐ No

ARE YOU THE OWNER OF THE EQUIPMENT UNDER THIS APPLICATION? ☒ Yes ☐ No

☐ IRS OR ☐ S. S. NUMBER OF OWNER

IF NO, ENTER THE LEGAL NAME OF OWNER

## Section II - Facility Information

EQUIPMENT ADDRESS/LOCATION:

661 S. COOLEY DR., COLTON, CA

FACILITY NAME:

ALLIANCE COLTON - CENTURY SUBSTATION

FACILITY ID NUMBER:

PRINT NAME OF CONTACT PERSON:

BRIAN O' NEILL

TITLE OF CONTACT PERSON:

VICE PRESIDENT

TYPE OF BUSINESS AT THIS FACILITY:

POWER GENERATION

PRIMARY SIC CODE FOR THIS

FACILITY: 4911

NUMBER OF EMPLOYEES AT THIS FACILITY

CONTACT PERSON'S PHONE NUMBER:

(661) 836-9873

CONTACT PERSON'S FAX NUMBER:

(661) 836-98535647

CONTACT PERSON'S E-MAIL ADDRESS:

BRIAN-ONEILL@ALLIANCEPOWER.COM

## Section III - Application Type

DESCRIPTION OF EQUIPMENT: GAS TURBINE NO.1, 10.5 MW

PREVIOUS PERMIT (S): NONE

APPLICATION FOR (SEE INSTRUCTIONS):

☒ NEW CONSTRUCTION

☐ MODIFICATION

☐ CHANGE OF LOCATION

ARE YOU SUBMITTING MULTIPLE APPLICATIONS FOR  
EQUIPMENT IDENTICAL TO THAT DESCRIBED ABOVE?

☒ Yes

☐ No

☐ EXISTING EQUIPMENT WITHOUT PERMIT

☐ CHANGE OF PERMITTEE

☐ CHANGE OF PERMIT CONDITION

☐ EXISTING EQUIPMENT WITH EXPIRED PERMIT

☒ APPLICATION FOR NON-TITLE V EQUIPMENT PERMIT. CHECK THE SUPPLEMENTAL SERIES 400-E-xx FORM(S) SUBMITTED WITH THIS 400-A FORM:

400-E-1 • PARTICULATE MATTER (PM<sub>10</sub>) CONTROL EQUIPMENT

400-E-13 • INTERNAL COMBUSTION EQUIPMENT

400-E-2 • VOLATILE ORGANIC COMPOUND (VOC) CONTROL EQUIPMENT

400-E-14 • OPEN PROCESS TANK

400-E-3 • SCRUBBER

400-E-14a • OPEN PROCESS TANK; PROCESS LINE

400-E-4 • ABRASIVE BLASTING EQUIPMENT

400-E-15 • PRINTING EQUIPMENT

400-E-6 • DEGREASER

400-E-16 • SOLID MATERIALS STORAGE EQUIPMENT

400-E-7 • DRY CLEANING EQUIPMENT

400-E-17 • SPRAY BOOTH/OPEN SPRAY

400-E-8 • ETHYLENE OXIDE STERILIZER

400-E-17a • POWDER SPRAY BOOTH

400-E-9 • EXTERNAL COMBUSTION EQUIPMENT

400-E-18 • STORAGE TANK (LIQUID & GASEOUS MAT'L)

400-E-10 • FOOD BROILER/FRYER

400-E-19 • WAVE SOLDER MACHINE

400-E-11 • FUEL DISPENSING AND STORAGE EQUIPMENT

400-E-20 • ASBESTOS REMOVAL EQUIPMENT

☒ 400-E-12 • GAS TURBINE

400-XPP

• ADDITIONAL INFORMATION SUBMITTED

☐ APPLICATION FOR TITLE V FACILITY PERMIT. PROVIDE INFORMATION REQUESTED ON REVERSE SIDE OF THIS FORM.

I HEREBY CERTIFY THAT ALL INFORMATION CONTAINED HEREIN AND INFORMATION SUBMITTED WITH THIS APPLICATION IS TRUE AND CORRECT.

SIGNATURE OF RESPONSIBLE OFFICIAL OF FIRM:

TITLE OF RESPONSIBLE OFFICIAL OF FIRM:

TYPE OR PRINT NAME OF RESPONSIBLE OFFICIAL OF FIRM:

BRIAN O'NEILL

RESPONSIBLE OFFICIAL'S PHONE NUMBER

(661) 836-9873

DATE SIGNED:

I HEREBY CERTIFY THAT ALL INFORMATION CONTAINED HEREIN AND INFORMATION SUBMITTED WITH THIS APPLICATION IS TRUE AND CORRECT.

SIGNATURE OF PREPARER, IF PREPARED BY PERSON OTHER THAN RESPONSIBLE OFFICIAL OF FIRM: TITLE OF PREPARER:

VICE PRESIDENT

TYPE OR PRINT NAME OF PREPARER:

KARL LANY, SCEC

PREPARER'S TELEPHONE NUMBER

(714) 282-8240

DATE SIGNED:

## TITLE V FACILITIES ONLY: COMPLETE OTHER SIDE

AQMD USE ONLY	APPLICATION/TRACKING #	PROJECT #	TYPE B C D	EQUIPMENT CATEGORY CODE:	FEE SCHEDULE:	VALIDATION
ENG. A R	ENG. A R	CLASS	ASSIGNMENT	ENF.	CHECK/MONEY ORDER	AMOUNT
DATE	DATE	I III IV	UNIT ENGINEER	SECT.	#	\$



South Coast Air Quality Management District  
P. O. Box 4944  
Diamond Bar, CA 91765  
(909) 396-2000

# APPLICATION FOR PERMIT TO CONSTRUCT AND PERMIT TO OPERATE FORM 400 - A (Century - GT No.2)

**COPY**

**Non-Title V Facilities:** This form must be accompanied by one or more 400-E-xx series form(s). Complete this side of form only.

**Title V Facilities:** Complete both sides of this form. Include additional forms as necessary.

NC/NOV NUMBER:

INSPECTOR

SECTOR

ISSUE DATE

## Section I - Company Information

LEGAL NAME OF OPERATOR:

ALLIANCE COLTON, LLC.

☐ IRS OR ☐ S. S. NUMBER

PERMIT TO BE ISSUED TO (SEE INSTRUCTIONS):

ALLIANCE COLTON, LLC. - CENTURY SUBSTATION

BUSINESS MAILING ADDRESS:

7950 S. LINCOLN ST. SUITE 114, LITTLETON, CO 80122

PERMIT MAILING ADDRESS, IF DIFFERENT FROM BUSINESS MAILING ADDRESS:

TYPE OF ORGANIZATION

☒ Corporation

☐ Individual

☐ Limited Partnership

☐ General Partnership

☐ Government Entity

☐ Other (Fill in):

ARE YOU A SMALL BUSINESS?

(SEE INSTRUCTIONS)

☐ Yes

☒ No

AVERAGE ANNUAL GROSS RECEIPTS \$

NUMBER OF EMPLOYEES:

IS YOUR BUSINESS 51 % OR MORE

WOMAN/MINORITY OWNED? ☐

Yes ☒ No

THIS SECTION IS REQUIRED FOR ALL APPLICATIONS FOR NEW CONSTRUCTION OR MAJOR MODIFICATIONS.

ARE ALL MAJOR SOURCES UNDER SAME OWNERSHIP IN CALIFORNIA IN COMPLIANCE WITH

FEDERAL, STATE, AND LOCAL AIR POLLUTION CONTROL RULES?

☒ Yes

☐ No

ARE YOU THE OWNER OF THE EQUIPMENT UNDER THIS APPLICATION?

☒ Yes

☐ No

☐ IRS OR ☐ S. S. NUMBER OF OWNER

IF NO, ENTER THE LEGAL NAME OF OWNER

## Section II - Facility Information

EQUIPMENT ADDRESS/LOCATION:

661 S. COOLEY DR., COLTON, CA

FACILITY NAME:

ALLIANCE COLTON - CENTURY SUBSTATION

FACILITY ID NUMBER:

PRINT NAME OF CONTACT PERSON:

BRIAN O' NEILL

TITLE OF CONTACT PERSON:

VICE PRESIDENT

TYPE OF BUSINESS AT THIS FACILITY:

POWER GENERATION

PRIMARY SIC CODE FOR THIS FACILITY: 4911

NUMBER OF EMPLOYEES AT THIS FACILITY

CONTACT PERSON'S PHONE NUMBER:

(661) 836-9873

CONTACT PERSON'S FAX NUMBER:

(661) 836-98535647

CONTACT PERSON'S E-MAIL ADDRESS:

BRIAN-ONEILL@ALLIANCEPOWER.COM

## Section III - Application Type

DESCRIPTION OF EQUIPMENT: GAS TURBINE NO.2, 10.5 MW

PREVIOUS PERMIT (S): NONE

APPLICATION FOR (SEE INSTRUCTIONS):

☒ NEW CONSTRUCTION

☐ EXISTING EQUIPMENT WITHOUT PERMIT

☐ EXISTING EQUIPMENT WITH EXPIRED PERMIT

☐ MODIFICATION

☐ CHANGE OF PERMITTEE

☐ CHANGE OF LOCATION

☐ CHANGE OF PERMIT CONDITION

ARE YOU SUBMITTING MULTIPLE APPLICATIONS FOR EQUIPMENT IDENTICAL TO THAT DESCRIBED ABOVE?

☒ Yes

☐ No

☒ APPLICATION FOR NON-TITLE V EQUIPMENT PERMIT. CHECK THE SUPPLEMENTAL SERIES 400-E-xx FORM(S) SUBMITTED WITH THIS 400-A FORM:

400-E-1 • PARTICULATE MATTER (PM<sub>10</sub>) CONTROL EQUIPMENT

400-E-2 • VOLATILE ORGANIC COMPOUND (VOC) CONTROL EQUIPMENT

400-E-3 • SCRUBBER

400-E-4 • ABRASIVE BLASTING EQUIPMENT

400-E-6 • DEGREASER

400-E-7 • DRY CLEANING EQUIPMENT

400-E-8 • ETHYLENE OXIDE STERILIZER

400-E-9 • EXTERNAL COMBUSTION EQUIPMENT

400-E-10 • FOOD BROILER/FRYER

400-E-11 • FUEL DISPENSING AND STORAGE EQUIPMENT

☒ 400-E-12 • GAS TURBINE

400-E-13 • INTERNAL COMBUSTION EQUIPMENT

400-E-14 • OPEN PROCESS TANK

400-E-14a • OPEN PROCESS TANK; PROCESS LINE

400-E-15 • PRINTING EQUIPMENT

400-E-16 • SOLID MATERIALS STORAGE EQUIPMENT

400-E-17 • SPRAY BOOTH/OPEN SPRAY

400-E-17a • POWDER SPRAY BOOTH

400-E-18 • STORAGE TANK (LIQUID & GASEOUS MAT'L)

400-E-19 • WAVE SOLDER MACHINE

400-E-20 • ASBESTOS REMOVAL EQUIPMENT

400-E-20 • ADDITIONAL INFORMATION SUBMITTED

☐ APPLICATION FOR TITLE V FACILITY PERMIT. PROVIDE INFORMATION REQUESTED ON REVERSE SIDE OF THIS FORM.

I HEREBY CERTIFY THAT ALL INFORMATION CONTAINED HEREIN AND INFORMATION SUBMITTED WITH THIS APPLICATION IS TRUE AND CORRECT.

SIGNATURE OF RESPONSIBLE OFFICIAL OF FIRM:

TITLE OF RESPONSIBLE OFFICIAL OF FIRM:

TYPE OR PRINT NAME OF RESPONSIBLE OFFICIAL OF FIRM:

BRIAN O'NEILL

RESPONSIBLE OFFICIAL'S PHONE NUMBER

( 661 ) 836-9873

DATE SIGNED:

I HEREBY CERTIFY THAT ALL INFORMATION CONTAINED HEREIN AND INFORMATION SUBMITTED WITH THIS APPLICATION IS TRUE AND CORRECT.

SIGNATURE OF PREPARER, IF PREPARED BY PERSON OTHER THAN RESPONSIBLE OFFICIAL OF FIRM: TITLE OF PREPARER:

VICE PRESIDENT

TYPE OR PRINT NAME OF PREPARER:

KARL LANY, SCEC

PREPARER'S TELEPHONE NUMBER

(714) 282-8240

DATE SIGNED:

## TITLE V FACILITIES ONLY: COMPLETE OTHER SIDE

AQMD USE ONLY	APPLICATION/TRACKING #	PROJECT #	TYPE B C D	EQUIPMENT CATEGORY CODE: /	FEE SCHEDULE: \$	VALIDATION
ENG. A R DATE	ENG. A R DATE	CLASS I III IV	ASSIGNMENT UNIT	ENF. SECT.	CHECK/MONEY ORDER #	AMOUNT \$



South Coast Air Quality Management District  
P. O. Box 4944  
Diamond Bar, CA 91765  
(909) 396-2000

# APPLICATION FOR PERMIT TO CONSTRUCT AND PERMIT TO OPERATE FORM 400 - A (Century - GT No.3)

**COPY**

**Non-Title V Facilities:** This form must be accompanied by one or more 400-E-xx series form(s). Complete this side of form only.

**Title V Facilities:** Complete both sides of this form. Include additional forms as necessary.

NC/NOV NUMBER:

INSPECTOR

SECTOR

ISSUE DATE

## Section I - Company Information

LEGAL NAME OF OPERATOR:  
**ALLIANCE COLTON, LLC.**

☐ IRS OR ☐ S. S. NUMBER

PERMIT TO BE ISSUED TO (SEE INSTRUCTIONS):  
**ALLIANCE COLTON, LLC. - CENTURY SUBSTATION**

BUSINESS MAILING ADDRESS:  
**7950 S. LINCOLN ST. SUITE 114, LITTLETON, CO 80122**

PERMIT MAILING ADDRESS, IF DIFFERENT FROM BUSINESS MAILING ADDRESS:

TYPE OF ORGANIZATION

☒ Corporation  
☐ Individual

☐ Limited Partnership  
☐ General Partnership

☐ Government Entity  
☐ Other (Fill in):

ARE YOU A SMALL BUSINESS?  
(SEE INSTRUCTIONS)

☐ Yes ☒ No

AVERAGE ANNUAL GROSS RECEIPTS \$

NUMBER OF EMPLOYEES:

IS YOUR BUSINESS 51 % OR MORE  
WOMAN/MINORITY OWNED? ☐

Yes ☒ No

THIS SECTION IS REQUIRED FOR ALL APPLICATIONS FOR NEW CONSTRUCTION OR MAJOR MODIFICATIONS.

ARE ALL MAJOR SOURCES UNDER SAME OWNERSHIP IN CALIFORNIA IN COMPLIANCE WITH  
FEDERAL, STATE, AND LOCAL AIR POLLUTION CONTROL RULES? ☒ Yes ☐ No

ARE YOU THE OWNER OF THE EQUIPMENT UNDER THIS APPLICATION? ☒ Yes ☐ No ☐ IRS OR ☐ S. S. NUMBER OF OWNER

IF NO, ENTER THE LEGAL NAME OF OWNER

## Section II - Facility Information

EQUIPMENT ADDRESS/LOCATION:  
**661 S. COOLEY DR., COLTON, CA**

FACILITY NAME:

**ALLIANCE COLTON - CENTURY SUBSTATION**

FACILITY ID NUMBER:

PRINT NAME OF CONTACT PERSON:

**BRIAN O' NEILL**

TITLE OF CONTACT PERSON:

**VICE PRESIDENT**

TYPE OF BUSINESS AT THIS FACILITY:  
**POWER GENERATION**

PRIMARY SIC CODE FOR THIS  
FACILITY: **4911**

NUMBER OF EMPLOYEES AT THIS FACILITY

CONTACT PERSON'S PHONE NUMBER:  
**(661) 836-9873**

CONTACT PERSON'S FAX NUMBER:  
**(661) 836-98535647**

CONTACT PERSON'S E-MAIL ADDRESS:  
**BRIAN-ONEILL@ALLIANCEPOWER.COM**

## Section III - Application Type

DESCRIPTION OF EQUIPMENT: **GAS TURBINE NO.3, 10.5 MW**

PREVIOUS PERMIT (S): **NONE**

APPLICATION FOR (SEE INSTRUCTIONS):

☒ NEW CONSTRUCTION ☐ MODIFICATION ☐ CHANGE OF LOCATION  
☐ EXISTING EQUIPMENT WITHOUT PERMIT ☐ CHANGE OF PERMITTEE ☐ CHANGE OF PERMIT CONDITION  
☐ EXISTING EQUIPMENT WITH EXPIRED PERMIT

ARE YOU SUBMITTING MULTIPLE APPLICATIONS FOR  
EQUIPMENT IDENTICAL TO THAT DESCRIBED ABOVE?  
☒ Yes ☐ No

☒ APPLICATION FOR NON-TITLE V EQUIPMENT PERMIT. CHECK THE SUPPLEMENTAL SERIES 400-E-xx FORM(S) SUBMITTED WITH THIS 400-A FORM:

400-E-1 • PARTICULATE MATTER (PM <sub>10</sub> ) CONTROL EQUIPMENT	400-E-13 • INTERNAL COMBUSTION EQUIPMENT
400-E-2 • VOLATILE ORGANIC COMPOUND (VOC) CONTROL EQUIPMENT	400-E-14 • OPEN PROCESS TANK
400-E-3 • SCRUBBER	400-E-14a • OPEN PROCESS TANK; PROCESS LINE
400-E-4 • ABRASIVE BLASTING EQUIPMENT	400-E-15 • PRINTING EQUIPMENT
400-E-6 • DEGREASER	400-E-16 • SOLID MATERIALS STORAGE EQUIPMENT
400-E-7 • DRY CLEANING EQUIPMENT	400-E-17 • SPRAY BOOTH/OPEN SPRAY
400-E-8 • ETHYLENE OXIDE STERILIZER	400-E-17a • POWDER SPRAY BOOTH
400-E-9 • EXTERNAL COMBUSTION EQUIPMENT	400-E-18 • STORAGE TANK (LIQUID & GASEOUS MAT'L)
400-E-10 • FOOD BROILER/FRYER	400-E-19 • WAVE SOLDER MACHINE
400-E-11 • FUEL DISPENSING AND STORAGE EQUIPMENT	400-E-20 • ASBESTOS REMOVAL EQUIPMENT
<input checked="" type="checkbox"/> 400-E-12 • GAS TURBINE	400-XPP • ADDITIONAL INFORMATION SUBMITTED

☐ APPLICATION FOR TITLE V FACILITY PERMIT. PROVIDE INFORMATION REQUESTED ON REVERSE SIDE OF THIS FORM.

I HEREBY CERTIFY THAT ALL INFORMATION CONTAINED HEREIN AND INFORMATION SUBMITTED WITH THIS APPLICATION IS TRUE AND CORRECT.  
SIGNATURE OF RESPONSIBLE OFFICIAL OF FIRM: TITLE OF RESPONSIBLE OFFICIAL OF FIRM:

TYPE OR PRINT NAME OF RESPONSIBLE OFFICIAL OF FIRM:  
**BRIAN O'NEILL**

RESPONSIBLE OFFICIAL'S PHONE NUMBER  
**(661) 836-9873**

DATE SIGNED:

I HEREBY CERTIFY THAT ALL INFORMATION CONTAINED HEREIN AND INFORMATION SUBMITTED WITH THIS APPLICATION IS TRUE AND CORRECT.  
SIGNATURE OF PREPARER, IF PREPARED BY PERSON OTHER THAN RESPONSIBLE OFFICIAL OF FIRM: TITLE OF PREPARER:

**VICE PRESIDENT**

TYPE OR PRINT NAME OF PREPARER:  
**KARL LANY, SCEC**

PREPARER'S TELEPHONE NUMBER  
**(714) 282-8240**

DATE SIGNED:

## TITLE V FACILITIES ONLY: COMPLETE OTHER SIDE

AQMD USE ONLY		APPLICATION/TRACKING #	PROJECT #	TYPE B C D	EQUIPMENT CATEGORY CODE: /	FEE SCHEDULE: \$	VALIDATION
ENG. A R DATE	ENG. A R DATE	CLASS I III IV	ASSIGNMENT UNIT	ENF. SECT.	CHECK/MONEY ORDER	AMOUNT \$	





South Coast Air Quality Management District  
P. O. Box 4944  
Diamond Bar, CA 91765  
(909) 396-2000

# APPLICATION FOR PERMIT TO CONSTRUCT AND PERMIT TO OPERATE FORM 400 - A (Century - GT No.4)

**COPY**

**Non-Title V Facilities:** This form must be accompanied by one or more 400-E-xx series form(s). Complete this side of form only.

**Title V Facilities:** Complete both sides of this form. Include additional forms as necessary.

NC/NOV NUMBER:

INSPECTOR

SECTOR

ISSUE DATE

## Section I - Company Information

LEGAL NAME OF OPERATOR:

ALLIANCE COLTON, LLC.

☐ IRS OR ☐ S. S. NUMBER

PERMIT TO BE ISSUED TO (SEE INSTRUCTIONS):

ALLIANCE COLTON, LLC. - CENTURY SUBSTATION

BUSINESS MAILING ADDRESS:

7950 S. LINCOLN ST. SUITE 114, LITTLETON, CO 80122

PERMIT MAILING ADDRESS, IF DIFFERENT FROM BUSINESS MAILING ADDRESS:

TYPE OF ORGANIZATION

☒ Corporation

☐ Individual

☐ Limited Partnership

☐ General Partnership

☐ Government Entity

☐ Other (Fill in):

ARE YOU A SMALL BUSINESS?  
(SEE INSTRUCTIONS)

☐ Yes

☒ No

AVERAGE ANNUAL GROSS RECEIPTS \$

NUMBER OF EMPLOYEES:

IS YOUR BUSINESS 51 % OR MORE  
WOMAN/MINORITY OWNED? ☐

Yes ☒ No

THIS SECTION IS REQUIRED FOR ALL APPLICATIONS FOR NEW CONSTRUCTION OR MAJOR MODIFICATIONS.

ARE ALL MAJOR SOURCES UNDER SAME OWNERSHIP IN CALIFORNIA IN COMPLIANCE WITH  
FEDERAL, STATE, AND LOCAL AIR POLLUTION CONTROL RULES? ☒ Yes ☐ No

ARE YOU THE OWNER OF THE EQUIPMENT UNDER THIS APPLICATION? ☒ Yes ☐ No ☐ IRS OR ☐ S. S. NUMBER OF OWNER

IF NO, ENTER THE LEGAL NAME OF OWNER

## Section II - Facility Information

EQUIPMENT ADDRESS/LOCATION:

661 S. COOLEY DR., COLTON, CA

FACILITY NAME:

ALLIANCE COLTON - CENTURY SUBSTATION

FACILITY ID NUMBER:

PRINT NAME OF CONTACT PERSON:

BRIAN O' NEILL

TITLE OF CONTACT PERSON:

VICE PRESIDENT

TYPE OF BUSINESS AT THIS FACILITY:

POWER GENERATION

PRIMARY SIC CODE FOR THIS

FACILITY: 4911

NUMBER OF EMPLOYEES AT THIS FACILITY

CONTACT PERSON'S PHONE NUMBER:

(661) 836-9873

CONTACT PERSON'S FAX NUMBER:

(661) 836-98535647

CONTACT PERSON'S E-MAIL ADDRESS:

BRIAN-ONEILL@ALLIANCEPOWER.COM

## Section III - Application Type

DESCRIPTION OF EQUIPMENT: GAS TURBINE NO.4, 10.5 MW

PREVIOUS PERMIT (S): NONE

APPLICATION FOR (SEE INSTRUCTIONS):

☒ NEW CONSTRUCTION ☐ MODIFICATION ☐ CHANGE OF LOCATION  
☐ EXISTING EQUIPMENT WITHOUT PERMIT ☐ CHANGE OF PERMITTEE ☐ CHANGE OF PERMIT CONDITION  
☐ EXISTING EQUIPMENT WITH EXPIRED PERMIT

ARE YOU SUBMITTING MULTIPLE APPLICATIONS FOR  
EQUIPMENT IDENTICAL TO THAT DESCRIBED ABOVE?  
☒ Yes ☐ No

☒ APPLICATION FOR NON-TITLE V EQUIPMENT PERMIT. CHECK THE SUPPLEMENTAL SERIES 400-E-xx FORM(S) SUBMITTED WITH THIS 400-A FORM:

<input type="checkbox"/> 400-E-1 • PARTICULATE MATTER (PM <sub>10</sub> ) CONTROL EQUIPMENT	<input type="checkbox"/> 400-E-13 • INTERNAL COMBUSTION EQUIPMENT
<input type="checkbox"/> 400-E-2 • VOLATILE ORGANIC COMPOUND (VOC) CONTROL EQUIPMENT	<input type="checkbox"/> 400-E-14 • OPEN PROCESS TANK
<input type="checkbox"/> 400-E-3 • SCRUBBER	<input type="checkbox"/> 400-E-14a • OPEN PROCESS TANK; PROCESS LINE
<input type="checkbox"/> 400-E-4 • ABRASIVE BLASTING EQUIPMENT	<input type="checkbox"/> 400-E-15 • PRINTING EQUIPMENT
<input type="checkbox"/> 400-E-5 • DEGREASER	<input type="checkbox"/> 400-E-16 • SOLID MATERIALS STORAGE EQUIPMENT
<input type="checkbox"/> 400-E-6 • DRY CLEANING EQUIPMENT	<input type="checkbox"/> 400-E-17 • SPRAY BOOTH/OPEN SPRAY
<input type="checkbox"/> 400-E-7 • ETHYLENE OXIDE STERILIZER	<input type="checkbox"/> 400-E-17a • POWDER SPRAY BOOTH
<input type="checkbox"/> 400-E-8 • EXTERNAL COMBUSTION EQUIPMENT	<input type="checkbox"/> 400-E-18 • STORAGE TANK (LIQUID & GASEOUS MAT'L)
<input type="checkbox"/> 400-E-9 • FOOD BROILER/FRYER	<input type="checkbox"/> 400-E-19 • WAVE SOLDER MACHINE
<input type="checkbox"/> 400-E-10 • FUEL DISPENSING AND STORAGE EQUIPMENT	<input type="checkbox"/> 400-E-20 • ASBESTOS REMOVAL EQUIPMENT
<input checked="" type="checkbox"/> 400-E-11 • GAS TURBINE	<input type="checkbox"/> 400-XP2 • ADDITIONAL INFORMATION SUBMITTED

☐ APPLICATION FOR TITLE V FACILITY PERMIT. PROVIDE INFORMATION REQUESTED ON REVERSE SIDE OF THIS FORM.

I HEREBY CERTIFY THAT ALL INFORMATION CONTAINED HEREIN AND INFORMATION SUBMITTED WITH THIS APPLICATION IS TRUE AND CORRECT.

SIGNATURE OF RESPONSIBLE OFFICIAL OF FIRM:

TITLE OF RESPONSIBLE OFFICIAL OF FIRM:

TYPE OR PRINT NAME OF RESPONSIBLE OFFICIAL OF FIRM:

BRIAN O' NEILL

RESPONSIBLE OFFICIAL'S PHONE NUMBER

( 661 ) 836-9873

DATE SIGNED:

I HEREBY CERTIFY THAT ALL INFORMATION CONTAINED HEREIN AND INFORMATION SUBMITTED WITH THIS APPLICATION IS TRUE AND CORRECT.

SIGNATURE OF PREPARER, IF PREPARED BY PERSON OTHER THAN RESPONSIBLE OFFICIAL OF FIRM: TITLE OF PREPARER:

VICE PRESIDENT

TYPE OR PRINT NAME OF PREPARER:

KARL LANY, SCEC

PREPARER'S TELEPHONE NUMBER

(714) 282-8240

DATE SIGNED:

## TITLE V FACILITIES ONLY: COMPLETE OTHER SIDE

AQMD USE ONLY		APPLICATION/TRACKING #	PROJECT #	TYPE B C D	EQUIPMENT CATEGORY CODE: /	FEE SCHEDULE: \$	VALIDATION
ENG. A R DATE	ENG. A R DATE	CLASS I III IV	ASSIGNMENT UNIT	ENF. SECT.	CHECK/MONEY ORDER #	AMOUNT \$	



South Coast Air Quality Management District  
P. O. Box 4944  
Diamond Bar, CA 91765  
(909) 396-2000

Form 400-A must accompany all submittals.

# **GAS TURBINE FORM 400 - E - 12 (Century - GT No.1)**

**COPY**

For:	Change of location, equipment w/expired permit, or change of operator:	ALL other application types: Submit all other information requested and:
Title V Facilities	Complete Sections I, IV, & V	Complete Sections I, II, III, IV, & V
All Other Facilities	Complete Sections I & IV	Complete Sections I, II, III, & IV

## **Section I - Facility/Application Information**

- Business Name: **ALLIANCE COLTON LLC - CENTURY SUBSTATION** Facility ID: **NONE**
- The requested application is for a(n): Date of Occurrence: **02/15/01**
  - ☒ New Construction
  - ☐ Change of Location
  - ☐ Modification of Equipment/Process
  - ☐ Existing Equipment with Expired Permit
  - ☐ Existing Equipment Operating without a Permit; Initial Operation Date: \_\_\_\_\_
  - ☐ Change of Condition(s); Specify the change of condition(s) requested: \_\_\_\_\_
  - ☐ Change of Operator; List previous name of operator and Facility ID #: \_\_\_\_\_
- If equipment has previous written permit, list Permit Number or Device Number(s): **NONE**
  - Write Rule 301 description of this equipment/process: **GAS TURBINE, <50MW**
- Are multiple applications being submitted for similar equipment (as defined in Rule 301) described below?  
☐ No ☒ Yes; If Yes, Number of Multiple Units: **4**
- Have you been issued a Notice to Comply (NTC) or Notice of Violation (NOV) for this equipment?  
☒ No ☐ Yes; NTC #: \_\_\_\_\_ NOV #: \_\_\_\_\_ Issue Date: \_\_\_\_/\_\_\_\_/\_\_\_\_
- For New Construction, Modification, or Change of Location:  
Estimated Construction Start Date: **03/30/01** Estimated Completion Date: **05/30/01**
- For this project, has a California Environmental Quality Act (CEQA) document been required by another governmental agency? ☒ No ☐ Yes, for agency (Provide name): \_\_\_\_\_
  - Are you required by another governmental agency to have a permit? ☒ No ☐ Yes, for agency (Provide name) \_\_\_\_\_
  - Are any of these permits discretionary? ☒ No ☐ Yes; list: \_\_\_\_\_
- Do you claim confidentiality of data? ☒ No ☐ Yes (attach explanation)
- Is the equipment located within 1,000 feet from the outer boundary of a school? ☒ No ☐ Yes  
(If Yes, complete a. for all public or private school, grade K-12, within a 1/4 mile radius of facility property)
  - School Name(s): \_\_\_\_\_ Telephone No(s): \_\_\_\_\_  
School Address(s): \_\_\_\_\_ School Address(s): \_\_\_\_\_

## **Section II - Equipment Information**

- Turbine Manufacturer: **GENERAL ELECTRIC** Model No.: **10B1** Serial No.: \_\_\_\_\_
  - Turbine Size (based on Higher Heating Value):  
Manufacturer Maximum Input Rating: **116.3 MMBTU/hour**  
Manufacturer Maximum Output Rating: **10.5 MW**
  - Turbine Function:
    - ☐ Driving Pump/Compressor
    - ☒ Electrical Generation
    - ☐ Emergency Peaking Unit
    - ☐ Exhaust Heat Recovery
    - ☐ Steam Generation
    - ☐ Other (specify): \_\_\_\_\_
  - Cycle Type:
    - ☒ Simple Cycle
    - ☐ Combined Cycle
    - ☐ Regenerative Cycle
    - ☐ Other (specify): \_\_\_\_\_
  - Fuel Information (check all that apply):
    - ☒ Natural Gas
    - ☐ Diesel Oil
    - ☐ Propane
    - ☐ Gasoline
    - ☐ Digester Gas\*
    - ☐ Landfill Gas\*
    - ☐ Other\* (specify): \_\_\_\_\_
- \* If Digester Gas, Landfill Gas, and/or Other are checked, attach fuel analysis indicating all constituents and HHV.

TURN OVER AND COMPLETE

AQMD USE ONLY		APPLICATION/TRACKING #		PROJECT #		TYPE B C D		EQUIPMENT CATEGORY CODE: _____/____		FEE SCHEDULE: \$		VALIDATION	
ENG. A R	ENG. A R	CLASS	ASSIGNMENT	ENF.	CHECK/MONEY ORDER	AMOUNT							
DATE	DATE	I III IV	UNIT	ENGINEER	SECT.								

**Section III - Operation Information**

1. Maximum Rated Full Load Fuel Consumption Rate: **123,000 cf/hr**
2. Average Load: **95 %**
3. Is Turbine equipped with exhaust heat recovery steam generator (HRSG)? ☐ Yes ☒ No  
If Yes, supply the size, flow rate, steam output capacity, and temperature profile.
4. Is Turbine equipped with duct burners? ☐ Yes ☒ No  
If Yes, provide burner description, fuel usage, combustion air input, and location of burner(s).
5. Is duct burner used as air pollution control equipment? ☐ Yes ☒ No  
If Yes and duct burner is permitted, list Permit Number(s) or Device Number(s) of control equipment: \_\_\_\_\_  
If Yes and duct burner is not permitted, a separate permit is required. Please see Form 400-E-GI for instructions.
6. a. Is Turbine equipped with air pollution control equipment? ☒ Yes ☐ No  
b. If Yes, please explain and list Permit Number(s) or Device Number(s) of control equipment:  
**UNIT WILL INCORPORATE CATALYTICA XONON COMBUSTION TECHNOLOGY**
- c. Steam/Water Injection? ☐ Yes ☒ No  
Injection Rate: \_\_\_\_\_ lbs water/lbs fuel or mole water/mole fuel
- d. Ammonia (NH<sub>3</sub>) Injection? ☐ Yes ☒ No  
Injection Rate: \_\_\_\_\_ lbs NH<sub>3</sub>/lbs fuel or mole NH<sub>3</sub>/mole fuel
- e. Combustion Type? ☐ Tubular ☐ Can-Annular ☐ Annular
- f. Selective Catalytic Reduction (SCR)? ☐ Yes ☒ No  
Reactor Temperature: \_\_\_\_\_ °F to \_\_\_\_\_ °F  
If Yes and SCR is not permitted, a separate permit is required. Please see Form 400-E-GI for instructions.

**Section IV - Emission Information**

1. Emissions Data:
- | POLLUTANTS | EMISSIONS BEFORE CONTROL <sup>1</sup> |              | EMISSIONS AFTER CONTROL |             |
|------------|---------------------------------------|--------------|-------------------------|-------------|
|            | PPM <sup>2</sup>                      | LB/HR        | PPM <sup>2</sup>        | LB/HR       |
| ROG        | _____                                 | <b>0.35</b>  | _____                   | <b>0.35</b> |
| NOX        | _____                                 | <b>11.81</b> | _____                   | <b>2.80</b> |
| CO         | _____                                 | <b>5.76</b>  | _____                   | <b>2.90</b> |
| PM         | _____                                 | <b>0.77</b>  | _____                   | <b>0.77</b> |
| SOX        | _____                                 | <b>0.4</b>   | _____                   | <b>0.4</b>  |
- <sup>1</sup> BASED ON TEMPERATURE, FUEL CONSUMPTION, AND MW OUTPUT  
<sup>2</sup> DRY AND CORRECTED TO 15% OXYGEN
- ☒ MANUFACTURER DATA ATTACHED ☒ EPA EMISSION FACTORS  
☐ AQMD EMISSION FACTORS ☐ SOURCE TEST DATA (ATTACH SOURCE TEST RESULTS)
2. Stack or Vent Data: A. STACK HEIGHT: **52 FEET** INCHES C. EXHAUST FLOW RATE: **199,537 ACFM**  
B. EXHAUST TEMPERATURE: **928** °F D. EXHAUST PRESSURE: \_\_\_\_\_ INCHES WATER
3. Operating Schedule: weeks/year: **17-50** days/week: **5-7**  
Max. Hrs.: **24 / DAY** Average Hrs.: **5 / DAY**

**Section V - Applicant Certification Statement**

I HEREBY CERTIFY THAT ALL INFORMATION CONTAINED HEREIN AND INFORMATION SUBMITTED WITH THIS APPLICATION IS TRUE AND CORRECT.  
SIGNATURE OF RESPONSIBLE OFFICIAL OF FIRM: \_\_\_\_\_ TITLE OF RESPONSIBLE OFFICIAL OF FIRM: \_\_\_\_\_

VICE PRESIDENT

TYPE OR PRINT NAME OF RESPONSIBLE OFFICIAL OF FIRM:

BRIAN O'NEILL

RESPONSIBLE OFFICIAL'S TELEPHONE NUMBER

(661) 836 - 9873

DATE SIGNED:

/ /

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SIGNATURE OF PREPARER: \_\_\_\_\_ TITLE OF PREPARER: \_\_\_\_\_

V.P. SCEC

TYPE OR PRINT NAME OF PREPARER:

KARL LANY

PREPARER'S TELEPHONE NUMBER

(714) 282-8240

DATE SIGNED:

The requested application involves a(n): (check all that apply)

- a. ☐ Minor Permit Revision e. ☐ Permit Shield (complete Form 500-D)  
b. ☐ Group Processing (check only if applicable) f. ☐ Streamlined Permit Conditions  
c. ☐ DeMinimis Significant Permit Revision g. ☐ Alternative Operating Scenario (AOS)  
d. ☐ Significant Permit Revision h. ☐ Other (specify): \_\_\_\_\_  
i. ☐ Non-Title V Permit Processing (Available until initial Title V permit is issued)



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(909) 396-2000

Form 400-A must accompany all submittals.

# **GAS TURBINE FORM 400 - E - 12 (Century - GT No.2)**

**COPY**

<b>For:</b>	<b>Change of location, equipment w/expired permit, or change of operator:</b>	<b>ALL other application types: Submit all other information requested and:</b>
<b>Title V Facilities</b>	<b>Complete Sections I, IV, &amp; V</b>	<b>Complete Sections I, II, III, IV, &amp; V</b>
<b>All Other Facilities</b>	<b>Complete Sections I &amp; IV</b>	<b>Complete Sections I, II, III, &amp; IV</b>

## **Section I - Facility/Application Information**

- Business Name: **ALLIANCE COLTON LLC - CENTURY SUBSTATION** Facility ID: **NONE**
- The requested application is for a(n): Date of Occurrence: **02/15/01**
  - ☒ New Construction
  - ☐ Change of Location
  - ☐ Modification of Equipment/Process
  - ☐ Existing Equipment with Expired Permit
  - ☐ Existing Equipment Operating without a Permit; Initial Operation Date: \_\_\_\_\_
  - ☐ Change of Condition(s); Specify the change of condition(s) requested: \_\_\_\_\_
  - ☐ Change of Operator; List previous name of operator and Facility ID #: \_\_\_\_\_
- If equipment has previous written permit, list Permit Number or Device Number(s): **NONE**
  - Write Rule 301 description of this equipment/process: **GAS TURBINE, <50MW**
- Are multiple applications being submitted for similar equipment (as defined in Rule 301) described below?  
☐ No ☒ Yes; If Yes, Number of Multiple Units: **4**
- Have you been issued a Notice to Comply (NTC) or Notice of Violation (NOV) for this equipment?  
☒ No ☐ Yes; NTC #: \_\_\_\_\_ NOV #: \_\_\_\_\_ Issue Date: \_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_
- For New Construction, Modification, or Change of Location:  
Estimated Construction Start Date: **03/30/01** Estimated Completion Date: **05/30/01**
- For this project, has a California Environmental Quality Act (CEQA) document been required by another governmental agency? ☒ No ☐ Yes, for agency (Provide name): \_\_\_\_\_
  - Are you required by another governmental agency to have a permit? ☒ No ☐ Yes, for agency (Provide name) \_\_\_\_\_
  - Are any of these permits discretionary? ☒ No ☐ Yes; list: \_\_\_\_\_
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(If Yes, complete a. for all public or private school, grade K-12, within a 1/4 mile radius of facility property)
  - School Name(s): \_\_\_\_\_ Telephone No(s): \_\_\_\_\_  
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  - Turbine Size (based on Higher Heating Value):  
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Manufacturer Maximum Output Rating: **10.5 MW**
  - Turbine Function:
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    - ☐ Emergency Peaking Unit
    - ☐ Exhaust Heat Recovery
    - ☐ Steam Generation
    - ☐ Other (specify): \_\_\_\_\_
  - Cycle Type:
    - ☒ Simple Cycle
    - ☐ Combined Cycle
    - ☐ Regenerative Cycle
    - ☐ Other (specify): \_\_\_\_\_
  - Fuel Information (check all that apply):
    - ☒ Natural Gas
    - ☐ Diesel Oil
    - ☐ Propane
    - ☐ Gasoline
    - ☐ Digester Gas\*
    - ☐ Landfill Gas\*
    - ☐ Other\* (specify): \_\_\_\_\_
- \* If Digester Gas, Landfill Gas, and/or Other are checked, attach fuel analysis indicating all constituents and HHV.

**TURN OVER AND COMPLETE**

<b>AQMD USE ONLY</b>		<b>APPLICATION/TRACKING #</b>		<b>PROJECT #</b>		<b>TYPE</b>		<b>EQUIPMENT CATEGORY CODE:</b>		<b>FEE SCHEDULE:</b>		<b>VALIDATION</b>	
						B C D		/		\$			
<b>ENG. A R</b>		<b>ENG. A R</b>		<b>CLASS</b>		<b>ASSIGNMENT</b>		<b>ENF.</b>		<b>CHECK/MONEY ORDER</b>		<b>AMOUNT</b>	
<b>DATE</b>		<b>DATE</b>		I III IV		UNIT		SECT.		#		\$	

**Section III - Operation Information**

1. Maximum Rated Full Load Fuel Consumption Rate: **123,000 cf/hr**
2. Average Load: **95 %**
3. Is Turbine equipped with exhaust heat recovery steam generator (HRSG)? ☐ Yes ☒ No  
If Yes, supply the size, flow rate, steam output capacity, and temperature profile.
4. Is Turbine equipped with duct burners? ☐ Yes ☒ No  
If Yes, provide burner description, fuel usage, combustion air input, and location of burner(s).
5. Is duct burner used as air pollution control equipment? ☐ Yes ☒ No  
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- c. Steam/Water Injection? ☐ Yes ☒ No  
Injection Rate: \_\_\_\_\_ lbs water/lbs fuel or mole water/mole fuel
- d. Ammonia (NH<sub>3</sub>) Injection? ☐ Yes ☒ No  
Injection Rate: \_\_\_\_\_ lbs NH<sub>3</sub>/lbs fuel or mole NH<sub>3</sub>/mole fuel
- e. Combustion Type? ☐ Tubular ☐ Can-Annular ☐ Annular
- f. Selective Catalytic Reduction (SCR)? ☐ Yes ☒ No  
Reactor Temperature: \_\_\_\_\_ °F to \_\_\_\_\_ °F  
If Yes and SCR is not permitted, a separate permit is required. Please see Form 400-E-GI for instructions.

**Section IV - Emission Information**

1. Emissions Data:
- | POLLUTANTS | EMISSIONS BEFORE CONTROL <sup>1</sup> |              | EMISSIONS AFTER CONTROL |             |
|------------|---------------------------------------|--------------|-------------------------|-------------|
|            | PPM <sup>2</sup>                      | LB/HR        | PPM <sup>2</sup>        | LB/HR       |
| ROG        | _____                                 | <b>0.35</b>  | _____                   | <b>0.35</b> |
| NOX        | _____                                 | <b>11.81</b> | _____                   | <b>2.80</b> |
| CO         | _____                                 | <b>5.76</b>  | _____                   | <b>2.90</b> |
| PM         | _____                                 | <b>0.77</b>  | _____                   | <b>0.77</b> |
| SOX        | _____                                 | <b>0.4</b>   | _____                   | <b>0.4</b>  |
- <sup>1</sup> BASED ON TEMPERATURE, FUEL CONSUMPTION, AND MW OUTPUT  
<sup>2</sup> DRY AND CORRECTED TO 15% OXYGEN
- ☒ MANUFACTURER DATA ATTACHED ☒ EPA EMISSION FACTORS  
☐ AQMD EMISSION FACTORS ☐ SOURCE TEST DATA (ATTACH SOURCE TEST RESULTS)
2. Stack or Vent Data::
- A. STACK HEIGHT: **52 FEET** INCHES C. EXHAUST FLOW RATE: **199,537 ACFM**  
B. EXHAUST TEMPERATURE: **928** °F D. EXHAUST PRESSURE: \_\_\_\_\_ INCHES WATER
3. Operating Schedule: weeks/year: **17-50** days/week: **5-7**  
Max. Hrs.: **24 / DAY** Average Hrs.: **5 / DAY**

**Section V - Applicant Certification Statement**

I HEREBY CERTIFY THAT ALL INFORMATION CONTAINED HEREIN AND INFORMATION SUBMITTED WITH THIS APPLICATION IS TRUE AND CORRECT.  
SIGNATURE OF RESPONSIBLE OFFICIAL OF FIRM: \_\_\_\_\_ TITLE OF RESPONSIBLE OFFICIAL OF FIRM: \_\_\_\_\_

VICE PRESIDENT

TYPE OR PRINT NAME OF RESPONSIBLE OFFICIAL OF FIRM:  
BRIAN O'NEILL

RESPONSIBLE OFFICIAL'S TELEPHONE NUMBER  
(661) 836 - 9873

DATE SIGNED:  
/ /

I HEREBY CERTIFY THAT ALL INFORMATION CONTAINED HEREIN AND INFORMATION SUBMITTED WITH THIS APPLICATION IS TRUE AND CORRECT.  
SIGNATURE OF PREPARER: \_\_\_\_\_ TITLE OF PREPARER: \_\_\_\_\_

V.P. SCEC

TYPE OR PRINT NAME OF PREPARER:  
KARL LANY

PREPARER'S TELEPHONE NUMBER  
(714) 282-8240

DATE SIGNED:

The requested application involves a(n): (check all that apply)

- a. ☐ Minor Permit Revision e. ☐ Permit Shield (complete Form 500-D)  
b. ☐ DeMinimis Significant Permit Revision f. ☐ Streamlined Permit Conditions  
c. ☐ Significant Permit Revision g. ☐ Alternative Operating Scenario (AOS)  
d. ☐ Non-Title V Permit Processing (Available until initial Title V permit is issued) h. ☐ Other (specify): \_\_\_\_\_



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Form 400-A must accompany all submittals.

# GAS TURBINE FORM 400 - E - 12 (Century - GT No.4)

COPY

For:	Change of location, equipment w/expired permit, or change of operator:	ALL other application types: Submit all other information requested and:
Title V Facilities	Complete Sections I, IV, & V	Complete Sections I, II, III, IV, & V
All Other Facilities	Complete Sections I & IV	Complete Sections I, II, III, & IV

## Section I - Facility/Application Information

- Business Name: **ALLIANCE COLTON LLC - CENTURY SUBSTATION** Facility ID: **NONE**
- The requested application is for a(n): Date of Occurrence: **02/15/01**
  - ☒ New Construction
  - ☐ Change of Location
  - ☐ Modification of Equipment/Process
  - ☐ Existing Equipment with Expired Permit
  - ☐ Existing Equipment Operating without a Permit; Initial Operation Date: \_\_\_\_\_
  - ☐ Change of Condition(s); Specify the change of condition(s) requested: \_\_\_\_\_
  - ☐ Change of Operator; List previous name of operator and Facility ID #: \_\_\_\_\_
- If equipment has previous written permit, list Permit Number or Device Number(s): **NONE**
  - Write Rule 301 description of this equipment/process: **GAS TURBINE, <50MW**
- Are multiple applications being submitted for similar equipment (as defined in Rule 301) described below?  
☐ No ☒ Yes; If Yes, Number of Multiple Units: **4**
- Have you been issued a Notice to Comply (NTC) or Notice of Violation (NOV) for this equipment?  
☒ No ☐ Yes; NTC #: \_\_\_\_\_ NOV #: \_\_\_\_\_ Issue Date: \_\_\_\_\_
- For New Construction, Modification, or Change of Location:  
Estimated Construction Start Date: **03/30/01** Estimated Completion Date: **05/30/01**
- For this project, has a California Environmental Quality Act (CEQA) document been required by another governmental agency? ☒ No ☐ Yes, for agency (Provide name): \_\_\_\_\_
  - Are you required by another governmental agency to have a permit? ☒ No ☐ Yes, for agency (Provide name) \_\_\_\_\_
  - Are any of these permits discretionary? ☒ No ☐ Yes; list: \_\_\_\_\_
- Do you claim confidentiality of data? ☒ No ☐ Yes (attach explanation)
- Is the equipment located within 1,000 feet from the outer boundary of a school? ☒ No ☐ Yes  
(If Yes, complete a. for all public or private school, grade K-12, within a 1/4 mile radius of facility property)
  - School Name(s): \_\_\_\_\_ Telephone No(s): \_\_\_\_\_  
School Address(s): \_\_\_\_\_ School Address(s): \_\_\_\_\_

## Section II - Equipment Information

- Turbine Manufacturer: **GENERAL ELECTRIC** Model No.: **10B1** Serial No.: \_\_\_\_\_
- Turbine Size (based on Higher Heating Value):  
Manufacturer Maximum Input Rating: **116.3 MMBTU/hour**  
Manufacturer Maximum Output Rating: **10.5 MW**
- Turbine Function:
  - ☐ Driving Pump/Compressor
  - ☒ Electrical Generation
  - ☐ Emergency Peaking Unit
  - ☐ Exhaust Heat Recovery
  - ☐ Steam Generation
  - ☐ Other (specify): \_\_\_\_\_
- Cycle Type:
  - ☒ Simple Cycle
  - ☐ Combined Cycle
  - ☐ Regenerative Cycle
  - ☐ Other (specify): \_\_\_\_\_
- Fuel Information (check all that apply):
  - ☒ Natural Gas
  - ☐ Diesel Oil
  - ☐ Propane
  - ☐ Gasoline
  - ☐ Digester Gas\*
  - ☐ Landfill Gas\*
  - ☐ Other\* (specify): \_\_\_\_\_

\* If Digester Gas, Landfill Gas, and/or Other are checked, attach fuel analysis indicating all constituents and HHV.

TURN OVER AND COMPLETE

AQMD USE ONLY		APPLICATION/TRACKING #		PROJECT #		TYPE		EQUIPMENT CATEGORY CODE:		FEE SCHEDULE:		VALIDATION	
ENG. A R		ENG. A R		CLASS		ASSIGNMENT		ENF.		CHECK/MONEY ORDER		AMOUNT	
DATE		DATE		I III IV		UNIT		SECT.		*		s	

**Section III - Operation Information**

1. Maximum Rated Full Load Fuel Consumption Rate: **123,000 cf/hr**
2. Average Load: **95 %**
3. Is Turbine equipped with exhaust heat recovery steam generator (HRSG)? ☐ Yes ☒ No  
If Yes, supply the size, flow rate, steam output capacity, and temperature profile.
4. Is Turbine equipped with duct burners? ☐ Yes ☒ No  
If Yes, provide burner description, fuel usage, combustion air input, and location of burner(s).
5. Is duct burner used as air pollution control equipment? ☐ Yes ☒ No  
If Yes and duct burner is permitted, list Permit Number(s) or Device Number(s) of control equipment: \_\_\_\_\_  
If Yes and duct burner is not permitted, a separate permit is required. Please see Form 400-E-GI for instructions.
6. a. Is Turbine equipped with air pollution control equipment? ☒ Yes ☐ No  
b. If Yes, please explain and list Permit Number(s) or Device Number(s) of control equipment:  
**UNIT WILL INCORPORATE CATALYTICA XONON COMBUSTION TECHNOLOGY**
- c. Steam/Water Injection? ☐ Yes ☒ No  
Injection Rate: \_\_\_\_\_ lbs water/lbs fuel or mole water/mole fuel
- d. Ammonia (NH<sub>3</sub>) Injection? ☐ Yes ☒ No  
Injection Rate: \_\_\_\_\_ lbs NH<sub>3</sub>/lbs fuel or mole NH<sub>3</sub>/mole fuel
- e. Combustion Type? ☐ Tubular ☐ Can-Annular ☐ Annular
- f. Selective Catalytic Reduction (SCR)? ☐ Yes ☒ No  
Reactor Temperature: \_\_\_\_\_ °F to \_\_\_\_\_ °F  
If Yes and SCR is not permitted, a separate permit is required. Please see Form 400-E-GI for instructions.

**Section IV - Emission Information**

1. Emissions Data:
- | POLLUTANTS | EMISSIONS BEFORE CONTROL <sup>1</sup> |              | EMISSIONS AFTER CONTROL |             |
|------------|---------------------------------------|--------------|-------------------------|-------------|
|            | PPM <sup>2</sup>                      | LB/HR        | PPM <sup>2</sup>        | LB/HR       |
| ROG        | _____                                 | <b>0.35</b>  | _____                   | <b>0.35</b> |
| NOX        | _____                                 | <b>11.81</b> | _____                   | <b>2.80</b> |
| CO         | _____                                 | <b>5.76</b>  | _____                   | <b>2.90</b> |
| PM         | _____                                 | <b>0.77</b>  | _____                   | <b>0.77</b> |
| SOX        | _____                                 | <b>0.4</b>   | _____                   | <b>0.4</b>  |
- <sup>1</sup> BASED ON TEMPERATURE, FUEL CONSUMPTION, AND MW OUTPUT  
<sup>2</sup> DRY AND CORRECTED TO 15% OXYGEN
- ☒ MANUFACTURER DATA ATTACHED ☒ EPA EMISSION FACTORS  
☐ AQMD EMISSION FACTORS ☐ SOURCE TEST DATA (ATTACH SOURCE TEST RESULTS)
2. Stack or Vent Data::
- A. STACK HEIGHT: **52 FEET** INCHES C. EXHAUST FLOW RATE: **199,537 ACFM**  
B. EXHAUST TEMPERATURE: **928** °F D. EXHAUST PRESSURE: \_\_\_\_\_ INCHES WATER
3. Operating Schedule: weeks/year: **17-50** days/week: **5-7**  
Max. Hrs.: **24 / DAY** Average Hrs.: **5 / DAY**

**Section V - Applicant Certification Statement**

I HEREBY CERTIFY THAT ALL INFORMATION CONTAINED HEREIN AND INFORMATION SUBMITTED WITH THIS APPLICATION IS TRUE AND CORRECT.

SIGNATURE OF RESPONSIBLE OFFICIAL OF FIRM:

TITLE OF RESPONSIBLE OFFICIAL OF FIRM:

VICE PRESIDENT

TYPE OR PRINT NAME OF RESPONSIBLE OFFICIAL OF FIRM:

BRIAN O'NEILL

RESPONSIBLE OFFICIAL'S TELEPHONE NUMBER

(661) 836 - 9873

DATE SIGNED:

/ /

I HEREBY CERTIFY THAT ALL INFORMATION CONTAINED HEREIN AND INFORMATION SUBMITTED WITH THIS APPLICATION IS TRUE AND CORRECT.

SIGNATURE OF PREPARER:

TITLE OF PREPARER:

V.P. SCEC

TYPE OR PRINT NAME OF PREPARER:

KARL LANY

PREPARER'S TELEPHONE NUMBER

(714) 282-8240

DATE SIGNED:

The requested application involves a(n): (check all that apply)

- a. ☐ Minor Permit Revision e. ☐ Permit Shield (complete Form 500-D)  
b. ☐ DeMinimis Significant Permit Revision f. ☐ Streamlined Permit Conditions  
c. ☐ Significant Permit Revision g. ☐ Alternative Operating Scenario (AOS)  
d. ☐ Non-Title V Permit Processing (Available until initial Title V permit is issued) h. ☐ Other (specify): \_\_\_\_\_



South Coast Air Quality Management District  
P. O. Box 4944  
Diamond Bar, CA 91765  
(909) 396-2000

Form 400-A must accompany all submittals.

# GAS TURBINE FORM 400 - E - 12 (Century - GT No.3)

COPY

<b>For:</b>	<b>Change of location, equipment w/expired permit, or change of operator:</b>	<b>ALL other application types: Submit all other information requested and:</b>
<b>Title V Facilities</b>	<b>Complete Sections I, IV, &amp; V</b>	<b>Complete Sections I, II, III, IV, &amp; V</b>
<b>All Other Facilities</b>	<b>Complete Sections I &amp; IV</b>	<b>Complete Sections I, II, III, &amp; IV</b>

## Section I - Facility/Application Information

- Business Name: **ALLIANCE COLTON LLC - CENTURY SUBSTATION** Facility ID: **NONE**
- The requested application is for a(n): Date of Occurrence: **02/15/01**
  - ☒ New Construction
  - ☐ Change of Location
  - ☐ Modification of Equipment/Process
  - ☐ Existing Equipment with Expired Permit
  - ☐ Existing Equipment Operating without a Permit; Initial Operation Date: \_\_\_\_\_
  - ☐ Change of Condition(s); Specify the change of condition(s) requested: \_\_\_\_\_
  - ☐ Change of Operator; List previous name of operator and Facility ID #: \_\_\_\_\_
- If equipment has previous written permit, list Permit Number or Device Number(s): **NONE**
  - Write Rule 301 description of this equipment/process: **GAS TURBINE, <50MW**
- Are multiple applications being submitted for similar equipment (as defined in Rule 301) described below?  
☐ No ☒ Yes; If Yes, Number of Multiple Units: **4**
- Have you been issued a Notice to Comply (NTC) or Notice of Violation (NOV) for this equipment?  
☒ No ☐ Yes; NTC #: \_\_\_\_\_ NOV #: \_\_\_\_\_ Issue Date: \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_
- For New Construction, Modification, or Change of Location:  
Estimated Construction Start Date: **03/30/01** Estimated Completion Date: **05/30/01**
- For this project, has a California Environmental Quality Act (CEQA) document been required by another governmental agency? ☒ No ☐ Yes, for agency (Provide name): \_\_\_\_\_
  - Are you required by another governmental agency to have a permit? ☒ No ☐ Yes, for agency (Provide name) \_\_\_\_\_
  - Are any of these permits discretionary? ☒ No ☐ Yes; list: \_\_\_\_\_
- Do you claim confidentiality of data? ☒ No ☐ Yes (attach explanation)
- Is the equipment located within 1,000 feet from the outer boundary of a school? ☒ No ☐ Yes  
(If Yes, complete a. for all public or private school, grade K-12, within a 1/4 mile radius of facility property)
  - School Name(s): \_\_\_\_\_ Telephone No(s): \_\_\_\_\_  
School Address(s): \_\_\_\_\_ School Address(s): \_\_\_\_\_

## Section II - Equipment Information

- Turbine Manufacturer: **GENERAL ELECTRIC** Model No.: **10B1** Serial No.: \_\_\_\_\_
- Turbine Size (based on Higher Heating Value):  
Manufacturer Maximum Input Rating: **116.3 MMBTU/hour**  
Manufacturer Maximum Output Rating: **10.5 MW**
- Turbine Function:
  - ☐ Driving Pump/Compressor
  - ☒ Electrical Generation
  - ☐ Emergency Peaking Unit
  - ☐ Exhaust Heat Recovery
  - ☐ Steam Generation
  - ☐ Other (specify): \_\_\_\_\_
- Cycle Type:
  - ☒ Simple Cycle
  - ☐ Combined Cycle
  - ☐ Regenerative Cycle
  - ☐ Other (specify): \_\_\_\_\_
- Fuel Information (check all that apply):
  - ☒ Natural Gas
  - ☐ Diesel Oil
  - ☐ Propane
  - ☐ Gasoline
  - ☐ Digester Gas\*
  - ☐ Landfill Gas\*
  - ☐ Other\* (specify): \_\_\_\_\_

\* If Digester Gas, Landfill Gas, and/or Other are checked, attach fuel analysis indicating all constituents and HHV.

TURN OVER AND COMPLETE

AQMD USE ONLY		APPLICATION/TRACKING #		PROJECT #		TYPE		EQUIPMENT CATEGORY CODE:		FEE SCHEDULE:		VALIDATION	
						B C D		_____/____/____		\$			
ENG. A R		ENG. A R		CLASS		ASSIGNMENT		ENF.		CHECK/MONEY ORDER		AMOUNT	
DATE		DATE		I III IV		UNIT		SECT.		\$		\$	



**Section III - Operation Information**

1. Maximum Rated Full Load Fuel Consumption Rate: **123,000 cf/hr**
2. Average Load: **95 %**
3. Is Turbine equipped with exhaust heat recovery steam generator (HRSG)? ☐ Yes ☒ No  
If Yes, supply the size, flow rate, steam output capacity, and temperature profile.
4. Is Turbine equipped with duct burners? ☐ Yes ☒ No  
If Yes, provide burner description, fuel usage, combustion air input, and location of burner(s).
5. Is duct burner used as air pollution control equipment? ☐ Yes ☒ No  
If Yes and duct burner is permitted, list Permit Number(s) or Device Number(s) of control equipment: \_\_\_\_\_  
If Yes and duct burner is not permitted, a separate permit is required. Please see Form 400-E-GI for instructions.
6. a. Is Turbine equipped with air pollution control equipment? ☒ Yes ☐ No  
b. If Yes, please explain and list Permit Number(s) or Device Number(s) of control equipment:  
**UNIT WILL INCORPORATE CATALYTICA XONON COMBUSTION TECHNOLOGY**
- c. Steam/Water Injection? ☐ Yes ☒ No  
Injection Rate: \_\_\_\_\_ lbs water/lbs fuel or mole water/mole fuel
- d. Ammonia (NH<sub>3</sub>) Injection? ☐ Yes ☒ No  
Injection Rate: \_\_\_\_\_ lbs NH<sub>3</sub>/lbs fuel or mole NH<sub>3</sub>/mole fuel
- e. Combustion Type? ☐ Tubular ☐ Can-Annular ☐ Annular
- f. Selective Catalytic Reduction (SCR)? ☐ Yes ☒ No  
Reactor Temperature: \_\_\_\_\_ °F to \_\_\_\_\_ °F  
If Yes and SCR is not permitted, a separate permit is required. Please see Form 400-E-GI for instructions.

**Section IV - Emission Information**

1. Emissions Data:
- | POLLUTANTS | EMISSIONS BEFORE CONTROL <sup>1</sup> |              | EMISSIONS AFTER CONTROL |             |
|------------|---------------------------------------|--------------|-------------------------|-------------|
|            | PPM <sup>2</sup>                      | LB/HR        | PPM <sup>2</sup>        | LB/HR       |
| ROG        | _____                                 | <b>0.35</b>  | _____                   | <b>0.35</b> |
| NOX        | _____                                 | <b>11.81</b> | _____                   | <b>2.80</b> |
| CO         | _____                                 | <b>5.76</b>  | _____                   | <b>2.90</b> |
| PM         | _____                                 | <b>0.77</b>  | _____                   | <b>0.77</b> |
| SOX        | _____                                 | <b>0.4</b>   | _____                   | <b>0.4</b>  |
- <sup>1</sup> BASED ON TEMPERATURE, FUEL CONSUMPTION, AND MW OUTPUT  
<sup>2</sup> DRY AND CORRECTED TO 15% OXYGEN
- ☒ MANUFACTURER DATA ATTACHED ☒ EPA EMISSION FACTORS  
☐ AQMD EMISSION FACTORS ☐ SOURCE TEST DATA (ATTACH SOURCE TEST RESULTS)
2. Stack or Vent Data::
- A. STACK HEIGHT: **52 FEET** INCHES C. EXHAUST FLOW RATE: **199,537 ACFM**  
B. EXHAUST TEMPERATURE: **928** °F D. EXHAUST PRESSURE: \_\_\_\_\_ INCHES WATER
3. Operating Schedule: weeks/year: **17-50** days/week: **5-7**  
Max. Hrs.: **24 / DAY** Average Hrs.: **5 / DAY**

**Section V - Applicant Certification Statement**

I HEREBY CERTIFY THAT ALL INFORMATION CONTAINED HEREIN AND INFORMATION SUBMITTED WITH THIS APPLICATION IS TRUE AND CORRECT.

SIGNATURE OF RESPONSIBLE OFFICIAL OF FIRM:

TITLE OF RESPONSIBLE OFFICIAL OF FIRM:

VICE PRESIDENT

TYPE OR PRINT NAME OF RESPONSIBLE OFFICIAL OF FIRM:

BRIAN O'NEILL

RESPONSIBLE OFFICIAL'S TELEPHONE NUMBER

(661) 836 - 9873

DATE SIGNED:

/ /

I HEREBY CERTIFY THAT ALL INFORMATION CONTAINED HEREIN AND INFORMATION SUBMITTED WITH THIS APPLICATION IS TRUE AND CORRECT.

SIGNATURE OF PREPARER:

TITLE OF PREPARER:

V.P. SCEC

TYPE OR PRINT NAME OF PREPARER:

KARL LANY

PREPARER'S TELEPHONE NUMBER

(714) 282-8240

DATE SIGNED:

The requested application involves a(n): (check all that apply)

- a. ☐ Minor Permit Revision e. ☐ Permit Shield (complete Form 500-D)  
b. ☐ DeMinimis Significant Permit Revision f. ☐ Streamlined Permit Conditions  
c. ☐ Significant Permit Revision g. ☐ Alternative Operating Scenario (AOS)  
d. ☐ Non-Title V Permit Processing (Available until initial Title V permit is issued) h. ☐ Other (specify): \_\_\_\_\_



South Coast Air Quality  
Management District  
21865 East Copley Drive  
Diamond Bar, CA 91765  
(909) 396- 2000

# CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) APPLICABILITY FORM 400 - CEQA

COPY

The SCAQMD is required by state law, the California Environmental Quality Act (CEQA), to review discretionary permit project applications for potential air quality and other environmental impacts. This form is a screening tool to assist the SCAQMD in clarifying whether or not the project<sup>1</sup> has the potential to generate significant adverse environmental impacts that might require preparation of a CEQA document [CEQA Guidelines §15060(a)].<sup>2</sup> Refer to the attached instructions for guidance in completing this form.<sup>3</sup> For each Form 400-A application, also complete and submit one Form 400-CEQA. If submitting multiple Form 400-A applications for the same project at the same time, only one 400-CEQA form is necessary for the entire project. If you need assistance completing this form, contact Lori Inga at (909) 396-3109.

## FACILITY INFORMATION

Facility Name: ALLIANCE COLTON, LLC - CENTURY SUBSTATION Facility ID (6-Digit): \_\_\_\_\_

Project Description: (4) 10.5MW GAS TURBINES, SIMPLE CYCLE, NATURAL GAS FIRED

## REVIEW FOR EXEMPTION FROM FURTHER CEQA ACTION

Check "Yes" or "No" as applicable

	Yes	No	Is this application for:
A.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	A request for a change of permittee only (without equipment modifications)?
B.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Equipment certification or equipment registration?
C.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	A CEQA and/or NEPA document previously or currently prepared that specifically evaluates this project? If yes, a permit cannot be issued until a Final CEQA document and Notice of Determination is submitted.
D.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Equipment damaged as a result of a disaster during state of emergency?
E.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	A Title V permit renewal (without equipment modifications)?
F.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	A Title V administrative permit revision?
G.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	The conversion of an existing permit into an initial Title V permit?
H.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	A functionally identical permit unit replacement with no increase in rating or emissions?
I.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	A change of daily VOC permit limit to a monthly VOC permit limit?

If "Yes" is checked for any question above, your application does not require additional evaluation for CEQA applicability. Skip to page 2, "SIGNATURES" and sign and date this form.

## REVIEW OF IMPACTS WHICH MAY TRIGGER CEQA

Complete Sections I-VI by checking "Yes" or "No" as applicable. To avoid delays in processing your application(s), explain all "Yes" responses on a separate sheet and attach it to this form.

	Yes	No	Section I - General
1.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Has this project generated any known public controversy regarding potential adverse impacts that may be generated by the project? Controversy may be construed as concerns raised by local groups at public meetings; adverse media attention such as negative articles in newspapers or other periodical publications, local news programs, environmental justice issues, etc.
2.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Is this project part of a larger project?
Section II - Air Quality			
3.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Will there be any demolition, excavating, and/or grading construction activities that encompass an area exceeding 20,000 square feet?
4.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Does this project include the open outdoor storage of dry bulk solid materials that could generate dust? If Yes, include a plot plan with the application package.

<sup>1</sup> A "project" means the whole of an action which has a potential for resulting in physical change to the environment, including construction activities, cleaning or grading of land, improvements to existing structures, and activities or equipment involving the issuance of a permit. For example, a project might include installation of a new, or modification of an existing internal combustion engine, dry-cleaning facility, boiler, gas turbine, spray coating booth, solvent cleaning tank, etc.

<sup>2</sup> See California Environmental Quality Act (CEQA) Guidelines, Title 14, California Code of Regulations, Section 15000.

	Yes	No	
5.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<b>Would this project result in noticeable off-site odors from activities that may not be subject to SCAQMD permit requirements?</b> For example, compost materials or other types of greenwaste (i.e., lawn clippings, tree trimmings, etc.) have the potential to generate odor complaints subject to Rule 402 - Nuisance.
6.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<b>Does this project cause an increase of emissions from marine vessels, trains and/or airplanes?</b>
7.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<b>Will the proposed project increase the QUANTITY of hazardous materials stored aboveground onsite or transported by mobile vehicle to or from the site by greater than or equal to the amounts associated with each compound on the attached Table 1?<sup>4</sup></b>
<b>Section III - Water Resources</b>			
8.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<b>Will the project increase demand for water at the facility by more than 5,000,000 gallons per day?</b> The following examples identify some, but not all, types of projects that may result in a "yes" answer to this question: 1) projects that generate steam; 2) projects that use water as part of the air pollution control equipment; 3) projects that require water as part of the production process; 4) projects that require new or expansion of existing sewage treatment facilities; 5) projects where water demand exceeds the capacity of the local water purveyor to supply sufficient water for the project; and 6) projects that require new or expansion of existing water supply facilities.
9.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<b>Will the project require construction of new water conveyance infrastructure?</b> Examples of such projects are when water demands exceed the capacity of the local water purveyor to supply sufficient water for the project, or require new or modified sewage treatment facilities such that the project requires new water lines, sewage lines, sewage hook-ups, etc.
<b>Section IV - Transportation/Circulation</b>			
10.			<b>Will the project result in (Check all that apply):</b>
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<b>a. the need for more than 350 new employees?</b>
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<b>b. an increase in heavy-duty transport truck traffic to and/or from the facility by more than 350 truck round-trips per day?</b>
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<b>c. increase customer traffic by more than 700 visits per day?</b>
<b>Section V - Noise</b>			
11.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<b>Will the project include equipment with a noise specification GREATER THAN 90 decibels (dB)?</b>
<b>Section VI - Public Services</b>			
12.			<b>Will the project create a permanent need for new or additional public services in any of the following areas (Check all that apply):</b>
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<b>a. Solid waste disposal?</b> Check "No" if the projected potential amount of wastes generated by the project is less than five tons per day.
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<b>b. Hazardous waste disposal?</b> Check "No" if the projected potential amount of hazardous wastes generated by the project is less than 42 cubic yards per day (or equivalent in pounds).
<b>**REMINDER: For each "Yes" checked in the sections above, attach all pertinent information including but not limited to estimated quantities, volumes, weights, etc.**</b>			

## SIGNATURES

I HEREBY CERTIFY THAT ALL INFORMATION CONTAINED HEREIN AND INFORMATION SUBMITTED WITH THIS APPLICATION IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE. I UNDERSTAND THAT THIS FORM IS A SCREENING TOOL AND THAT THE SCAQMD RESERVES THE RIGHT TO CONSIDER OTHER PERTINENT INFORMATION IN DETERMINING CEQA APPLICABILITY.

SIGNATURE OF RESPONSIBLE OFFICIAL OF FIRM:		TITLE OF RESPONSIBLE OFFICIAL OF FIRM:	
TYPE OR PRINT NAME OF RESPONSIBLE OFFICIAL OF FIRM: BRIAN O'NEILL		RESPONSIBLE OFFICIAL'S TELEPHONE NUMBER: (661) 836-9873	DATE Signed:
SIGNATURE OF PREPARER, IF PREPARED BY PERSON OTHER THAN RESPONSIBLE OFFICIAL OF FIRM:		TITLE OF PREPARER: V.P., SCEA	
TYPE OR PRINT NAME OF PREPARER: KARL A. LANY		PREPARER'S TELEPHONE NUMBER: (714) 282-8240	DATE Signed:

**THIS CONCLUDES FORM 400-CEQA. INCLUDE THIS FORM AND THE ATTACHMENTS WITH FORM 400-A.**

## **APPENDIX B**

### **FACILITY LOCATION MAPS AND DIAGRAMS**





PROJECT\Alliance\99918-Century\Const\CENTURY-PLAN.dwg, 02/13/01 04:28:56 pm, \\DENV1\IDENV HP2

GRAPHIC SCALE:

~~NO. 753-P. 2~~

BLACK AND VEATCH

7. 5:04AM

## **APPENDIX C**

### **EQUIPMENT INFORMATION**



GE AERO ENERGY PRODUCTS GE GE10- Estimated Average Engine Performance NOT FOR GUARANTEE NAT GAS  
Done by: NP 12/18/00 2:36:35 PM GE10-80012-6  
City of Colton, California

CASE # 209  
AMBIENT  
DB, °F 53.0  
WB, °F 51.3  
RH, % 60.0  
ALT, FT 1000  
ENGINE INLET  
TEMP, °F 59.0  
RH, % 60.0  
CONDITIONING NONE  
TONS or kBTU 0

KW, GEN TERM 10464  
Btu/kW-hr, LHV 11118

FUEL  
MMBtu/hr, LHV 115.3  
lb/hr 6.130

NOZZLE WATER  
lb/hr 0  
°F 0

COMPRESSOR STEAM  
lb/hr 0  
°F 0

INLET LOSS, inH2O 4.00  
EXHAUST LOSS, inH2O 4.00

PT SPEED, rpm 0  
COMP DISCH, psia 219.2  
COMP DISCH, °F 775

GEARBOX EFF 0.99  
GENERATOR EFF 0.976

EXHAUST PARAMETERS  
°F 928  
lb/s 59.8  
lb/hr 355680  
Cp Btu/lb-R 0.2722

EMISSIONS (NOT FOR USE IN ENVIRONMENTAL PERMITS, Ref @ 15% O2)  
NOx, ppmvd 25  
NOx, lb/hr 12  
CO, ppmvd 20  
CO, lb/hr 7

EXH WGT % WET (NOT FOR USE IN ENVIRONMENTAL PERMITS)

AR 1.3152  
N2 73.8766  
O2 16.3192  
CO2 4.4425  
H2O 4.0343

EXH MOLE % DRY (NOT FOR USE IN ENVIRONMENTAL PERMITS)

AR 1.0042  
N2 80.3760  
O2 15.5432  
CO2 3.0766  
H2O 0.0000

**CITY OF COLTON  
CENTURY SUBSTATION LEASE AGREEMENT  
WITH ALLIANCE COLTON, LLC**

**1. PARTIES AND DATE.**

This Lease Agreement ("Agreement") is made and entered into this 20<sup>th</sup> day of December, 2000 ("Effective Date") by and between the City of Colton (hereinafter referred to as "City"), a municipal corporation, and Alliance Colton, LLC (hereinafter referred to as "Lessee"), a California corporation. The City and Lessee are sometimes collectively referred to herein as the "Parties."

**2. RECITALS.**

2.1 Premises. The City is the owner of that certain real property located at San Bernardino County Assessors Parcel Number 027613174, at 661 S. Cooley Drive, in the City of Colton, County of San Bernardino, State of California, commonly known as the Century Substation and more particularly described in Exhibit "A" attached hereto and incorporated herein by reference ("City Property"). The City desires to lease to Lessee and Lessee desires to lease from the City certain portions of the City Property more particularly described in Exhibit "B" attached hereto and incorporated herein by reference ("Premises"). Lessee shall have the right to use the Premises for the purpose of installing, removing, replacing, modifying, maintaining, and operating electric generation facilities and equipment (collectively, "Lessee Facilities") in exchange for due and adequate consideration, the receipt and sufficiency of which are acknowledged by the Parties and further described and set forth in this Agreement.

2.2 Access. During the Term of this Agreement, as defined herein, Lessee shall have supervised access, including ingress and egress, to the Premises to install, operate, maintain and remove the Lessee's Facilities, as defined below, under the following conditions: (1) Lessee shall give 24 hours prior written notice to City when requesting access (Written notice can include the lessee submitting a monthly schedule to the City identifying the timetable for access to Premises for routine operations and maintenance); (2) at the City's option, a City representative shall remain on the Premises during the period of access to Lessee; and (3) prior to and during the period of access, Lessee shall not be in default of any obligation under this Agreement. In the event the Lessee Facilities fail to operate, Lessee may have immediate supervised access to the Premises, provided such access does not disrupt City activities. The City shall not unreasonably deny access to Lessee in the event of such an emergency. Access will be provided to Lessee in those portions of the City Property that are specifically designed for access, ingress, and egress to the Premises.

1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100. 101. 102. 103. 104. 105. 106. 107. 108. 109. 110. 111. 112. 113. 114. 115. 116. 117. 118. 119. 120. 121. 122. 123. 124. 125. 126. 127. 128. 129. 130. 131. 132. 133. 134. 135. 136. 137. 138. 139. 140. 141. 142. 143. 144. 145. 146. 147. 148. 149. 150. 151. 152. 153. 154. 155. 156. 157. 158. 159. 160. 161. 162. 163. 164. 165. 166. 167. 168. 169. 170. 171. 172. 173. 174. 175. 176. 177. 178. 179. 180. 181. 182. 183. 184. 185. 186. 187. 188. 189. 190. 191. 192. 193. 194. 195. 196. 197. 198. 199. 200. 201. 202. 203. 204. 205. 206. 207. 208. 209. 210. 211. 212. 213. 214. 215. 216. 217. 218. 219. 220. 221. 222. 223. 224. 225. 226. 227. 228. 229. 230. 231. 232. 233. 234. 235. 236. 237. 238. 239. 240. 241. 242. 243. 244. 245. 246. 247. 248. 249. 250. 251. 252. 253. 254. 255. 256. 257. 258. 259. 260. 261. 262. 263. 264. 265. 266. 267. 268. 269. 270. 271. 272. 273. 274. 275. 276. 277. 278. 279. 280. 281. 282. 283. 284. 285. 286. 287. 288. 289. 290. 291. 292. 293. 294. 295. 296. 297. 298. 299. 300. 301. 302. 303. 304. 305. 306. 307. 308. 309. 310. 311. 312. 313. 314. 315. 316. 317. 318. 319. 320. 321. 322. 323. 324. 325. 326. 327. 328. 329. 330. 331. 332. 333. 334. 335. 336. 337. 338. 339. 340. 341. 342. 343. 344. 345. 346. 347. 348. 349. 350. 351. 352. 353. 354. 355. 356. 357. 358. 359. 360. 361. 362. 363. 364. 365. 366. 367. 368. 369. 370. 371. 372. 373. 374. 375. 376. 377. 378. 379. 380. 381. 382. 383. 384. 385. 386. 387. 388. 389. 390. 391. 392. 393. 394. 395. 396. 397. 398. 399. 400. 401. 402. 403. 404. 405. 406. 407. 408. 409. 410. 411. 412. 413. 414. 415. 416. 417. 418. 419. 420. 421. 422. 423. 424. 425. 426. 427. 428. 429. 430. 431. 432. 433. 434. 435. 436. 437. 438. 439. 440. 441. 442. 443. 444. 445. 446. 447. 448. 449. 450. 451. 452. 453. 454. 455. 456. 457. 458. 459. 460. 461. 462. 463. 464. 465. 466. 467. 468. 469. 470. 471. 472. 473. 474. 475. 476. 477. 478. 479. 480. 481. 482. 483. 484. 485. 486. 487. 488. 489. 490. 491. 492. 493. 494. 495. 496. 497. 498. 499. 500. 501. 502. 503. 504. 505. 506. 507. 508. 509. 510. 511. 512. 513. 514. 515. 516. 517. 518. 519. 520. 521. 522. 523. 524. 525. 526. 527. 528. 529. 530. 531. 532. 533. 534. 535. 536. 537. 538. 539. 540. 541. 542. 543. 544. 545. 546. 547. 548. 549. 550. 551. 552. 553. 554. 555. 556. 557. 558. 559. 560. 561. 562. 563. 564. 565. 566. 567. 568. 569. 570. 571. 572. 573. 574. 575. 576. 577. 578. 579. 580. 581. 582. 583. 584. 585. 586. 587. 588. 589. 590. 591. 592. 593. 594. 595. 596. 597. 598. 599. 600. 601. 602. 603. 604. 605. 606. 607. 608. 609. 610. 611. 612. 613. 614. 615. 616. 617. 618. 619. 620. 621. 622. 623. 624. 625. 626. 627. 628. 629. 630. 631. 632. 633. 634. 635. 636. 637. 638. 639. 640. 641. 642. 643. 644. 645. 646. 647. 648. 649. 650. 651. 652. 653. 654. 655. 656. 657. 658. 659. 660. 661. 662. 663. 664. 665. 666. 667. 668. 669. 670. 671. 672. 673. 674. 675. 676. 677. 678. 679. 680. 681. 682. 683. 684. 685. 686. 687. 688. 689. 690. 691. 692. 693. 694. 695. 696. 697. 698. 699. 700. 701. 702. 703. 704. 705. 706. 707. 708. 709. 710. 711. 712. 713. 714. 715. 716. 717. 718. 719. 720. 721. 722. 723. 724. 725. 726. 727. 728. 729. 730. 731. 732. 733. 734. 735. 736. 737. 738. 739. 740. 741. 742. 743. 744. 745. 746. 747. 748. 749. 750. 751. 752. 753. 754. 755. 756. 757. 758. 759. 760. 761. 762. 763. 764. 765. 766. 767. 768. 769. 770. 771. 772. 773. 774. 775. 776. 777. 778. 779. 780. 781. 782. 783. 784. 785. 786. 787. 788. 789. 790. 791. 792. 793. 794. 795. 796. 797. 798. 799. 800. 801. 802. 803. 804. 805. 806. 807. 808. 809. 810. 811. 812. 813. 814. 815. 816. 817. 818. 819. 820. 821. 822. 823. 824. 825. 826. 827. 828. 829. 830. 831. 832. 833. 834. 835. 836. 837. 838. 839. 840.

1. National Association of Conservation Districts  
 2. National Association of State Game Warden Societies  
 3. National Association of State Game Warden Societies  
 4. National Association of State Game Warden Societies  
 5. National Association of State Game Warden Societies  
 6. National Association of State Game Warden Societies  
 7. National Association of State Game Warden Societies  
 8. National Association of State Game Warden Societies  
 9. National Association of State Game Warden Societies  
 10. National Association of State Game Warden Societies

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Equivalent Diameter: 9.80'

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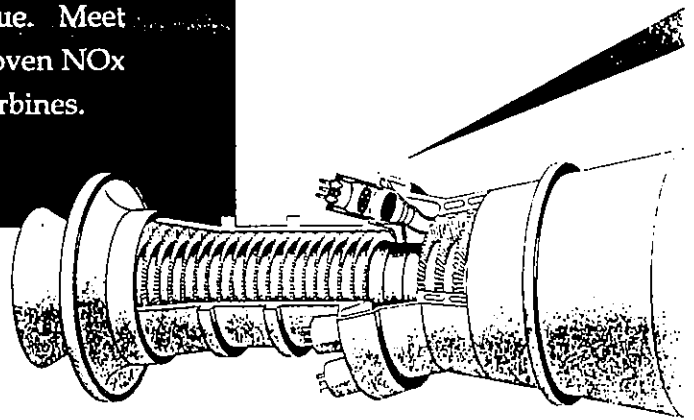
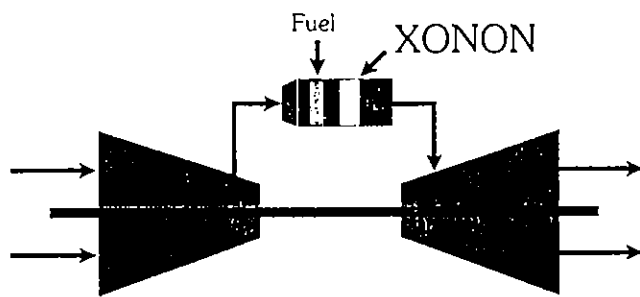
**XONON**

*No NOx Combustion*

# The ultimate

## The Regulatory Challenge Is Now

The time has come when the gas turbine user must meet existing regulatory requirements and prepare for future regulatory challenges. At the same time the user must select the NO<sub>x</sub> control technology that provides optimum operating flexibility and economic value. Meet this challenge with the XONON Combustion System, a proven NO<sub>x</sub> control technology now available for new and existing gas turbines.



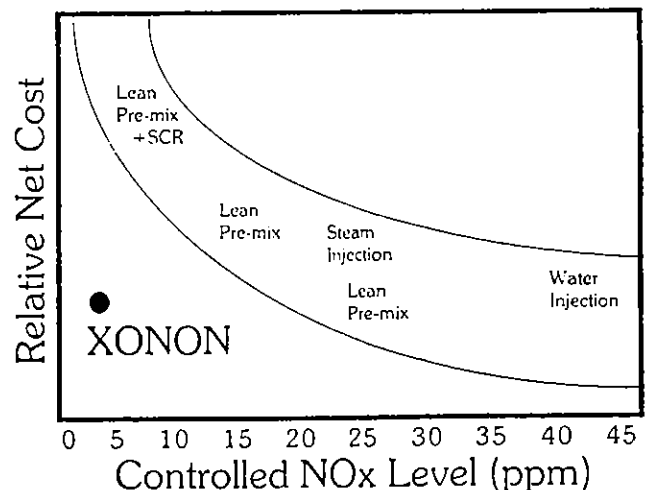
## Get Value From Your NO<sub>x</sub> Control Solution

### XONON System Value Benefits:

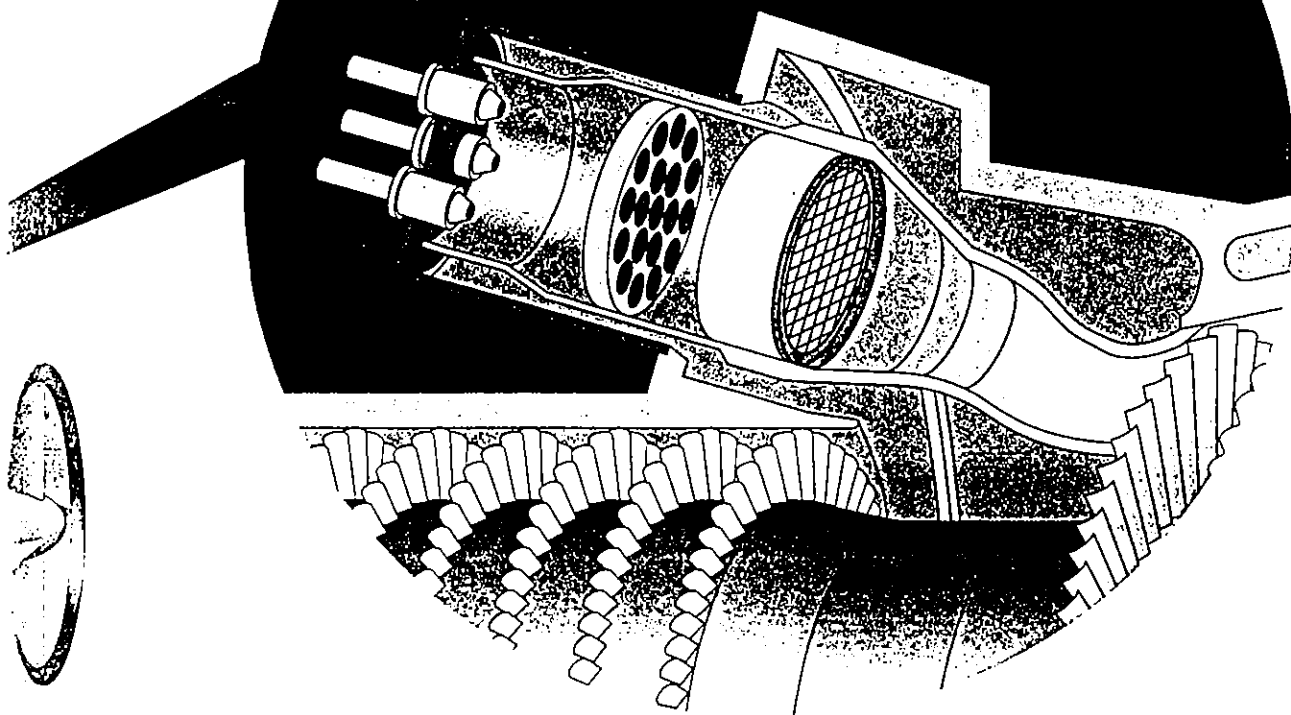
- Reduce offset requirements.
- Generate emission reduction credits.
- Faster, simpler, less costly permitting.
- Potentially avoid Title V permits.

### XONON System Operational Benefits:

- No combustor vibration or noise.
- No change in engine performance.
- No increase in CO or UHC emissions.



# NOx solution



## Breakthrough Technology

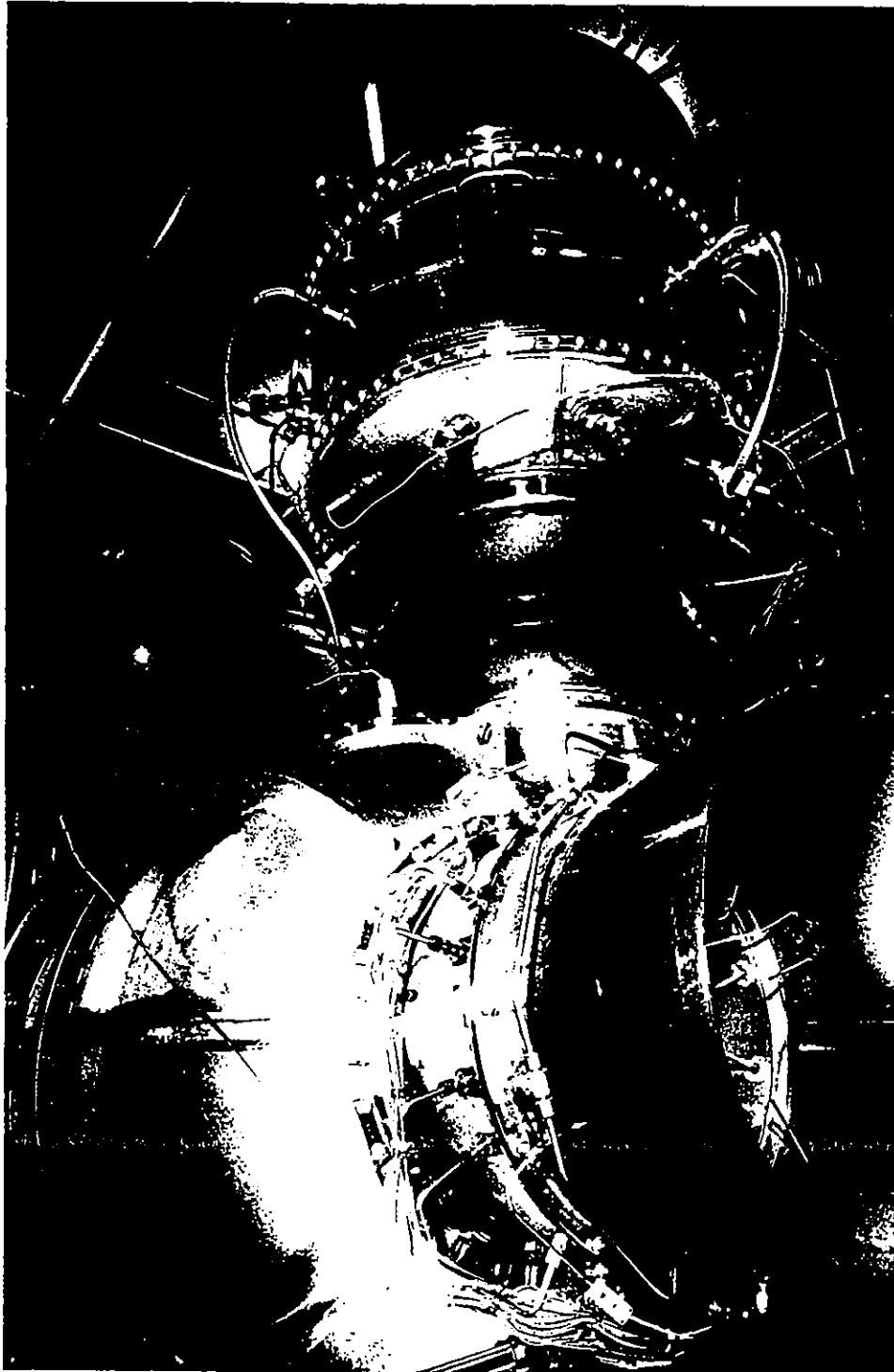
The XONON Combustion System, as an integral part of the combustor, results in ultra low NOx, CO and UHC emissions without compromising engine performance. Manufacturers such as General Electric and Solar Turbines have demonstrated it, the Advanced Turbine Systems (ATS) programs funded by the US Department of Energy have selected it, and it is now being verified in field trials. The operational and economic value of the XONON Combustion System is now available to meet your requirements.

## Get XONON Power

Apply the XONON solution to new and existing turbines to meet your operational and regulatory requirements. For new turbines contact your turbine manufacturer; for installed turbines contact GENXON Power Systems. Catalytica Customer Service is always available.

# It's proven at 3ppm

# The XONON Combustor



## It's working at 3ppm

CATALYTICA COMBUSTION SYSTEMS, INC.  
430 Ferguson Drive, Mountain View, CA 94043-5272  
Tel: 415-960-3000 Fax: 415-960-0127  
[www.catalytica-inc.com](http://www.catalytica-inc.com)

GENXON is a joint venture of Catalytica Combustion Systems, Inc. and Woodward Governor Company dedicated to serve the gas turbine retrofit market.  
GENXON is a trademark of GENXON Power Systems.  
XONON is a registered trademark of Catalytica Combustion Systems, Inc.

## **Catalytica, Inc.**

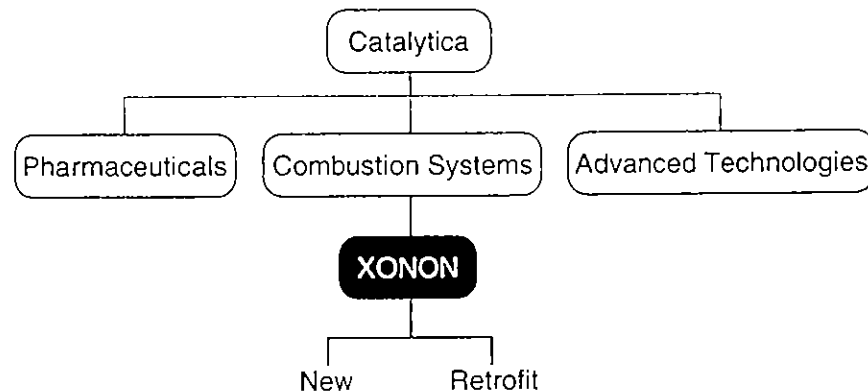
Catalytica, Inc. (NASDAQ: CTAL) builds businesses in high growth industries where the company's catalytic technologies optimize manufacturing and solve environmental problems. In addition to Catalytica Combustion Systems, Inc., Catalytica Pharmaceuticals, Inc. provides process development and product manufacturing to the pharmaceutical industry, and Catalytica Advanced Technologies, Inc. serves as an incubator for new catalytic technologies for industrial applications. Catalytica has a market capitalization of about \$800 million and 1,400 employees.

Find Catalytica on the Worldwide Web at: [www.catalytica-inc.com](http://www.catalytica-inc.com)

## **Catalytica Combustion Systems, Inc.**

Catalytica Combustion Systems, Inc. (CCSI), in cooperation with gas turbine manufacturers, provides advanced combustion systems for gas turbines, based upon the breakthrough technology called Xonon™ (pronounced Zo-non). The Xonon combustion system achieves ultra-low air emissions without the use of burdensome emission clean-up systems by avoiding the formation of air pollutants in the combustion process. Xonon is the most economic and efficient alternative to reduce emissions without impacting turbine performance.

The first commercial-ready Xonon combustion system is installed and operating on a gas turbine at Silicon Valley Power in Santa Clara, California. Performance results are being reported periodically on CCSI's web site.





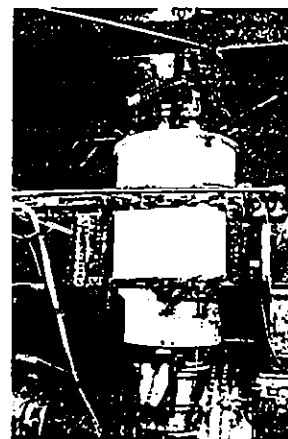
### Baseline Performance Results

A prototype of the Xonon™ combustion system (XONON-1) was installed on a 1.5 MW Kawasaki M1A-13A gas turbine, and was operated in a test cell at Tulsa, Oklahoma, to establish baseline conditions. At Tulsa, during 1100 operating hours and 220 starts, Xonon was proven to reduce NOx to less than 2.5 ppm and CO and UHC to less than 6 ppm without impacting engine performance.

### Silicon Valley Power (SVP)

The next step in commercialization, a 1.5 MW Kawasaki turbine equipped with XONON-1 was installed at a municipally owned electric utility, Silicon Valley Power, in Santa Clara, California for operation on the grid. Operations began in late 1998 by re-establishing the baseline conditions, completing the compliance tests to assure the operation met permit conditions, implement the control system for unattended operation (24 hours a day, 7 days a week) and establish a reliable connection to the electrical grid.

A commercial-ready combustor, XONON-2, was then installed on the Kawasaki turbine and a RAMD program began in June 1999 to validate the performance of the Xonon combustion system. RAMD (Reliability, Availability, Maintainability, Durability) is a program that is sponsored in part by the US Department of Energy (DOE), Gas Research Institute (GRI), California Energy Commission (CEC) under their PIER program, and the California Air Resources Board (CARB) under their ICAT program.



XONON-2 installed  
with test instruments

### SVP Update (November 1999)

The commercial-ready Xonon combustion system, installed on a 1.5 MW Kawasaki gas turbine has been operating 24 hours a day, 7 days a week supplying clean electricity to Silicon Valley Power's customers. Performance results are summarized in the following table.

| Performance Criteria                             | Results (as of 11/15/99)                     |
|--|--|
| RAMD Operating Hours                             | > 3300                                       |
| Average NOx emissions                            | < 1.5 ppm (corrected to 15% O <sub>2</sub> ) |
| Average CO emissions                             | < 6 ppm                                      |
| Average UHC emissions                            | < 1 ppm                                      |
| Availability (total uptime/total period time)    | 90.5%  |
| Reliability (unplanned outage/total period time) | 98.5%  |

The Xonon combustion system exhibits ultra-low dynamic pressure oscillations (vibration/noise) with results less than 0.6 psi (rms) over the entire range and measured at several points in the combustor. In addition, the Xonon system demonstrates a consistent/uniform temperature profile.

# Vibration and Noise



- *Kawasaki Results*
- *General Electric Results*

Current regulations in many parts of the world require very low NOx emissions for gas turbines. This has been a challenge for gas turbines because lean-premix combustion systems and other NOx reducing technologies can encounter flame instabilities that cause pressure pulsations and vibration within the engine. The effects can range from a simple nuisance—the turbine makes disturbing noise when it runs—to a major mechanical failure from vibration induced fatigue of key structural components.

In contrast, the Xonon™ combustion system has been demonstrated in full-scale, full-operating conditions for a number of different combustor designs and, in all cases, has exhibited excellent stability with very low dynamic pressure pulsations.

Operating continuously on the grid at Silicon Valley Power, low dynamic pressure pulsations are being achieved with a Xonon combustion system on a 1.5 MW Kawasaki gas turbine. Figure 1 shows the magnitude of the dynamic pressure pulsations measured across a broad frequency range in a full-size Xonon system. NOx emissions are below 2.5 ppm.

A similar test was conducted with a 20-inch diameter Xonon Module on a GE Frame 9E combustor test stand (equivalent to ~8 megawatts of electrical output) under base load operating conditions. The overall measured dynamics of 0.46 psi were significantly below the typical levels in lean-premix systems. Under these conditions, NOx levels of 1.7 ppm were measured.

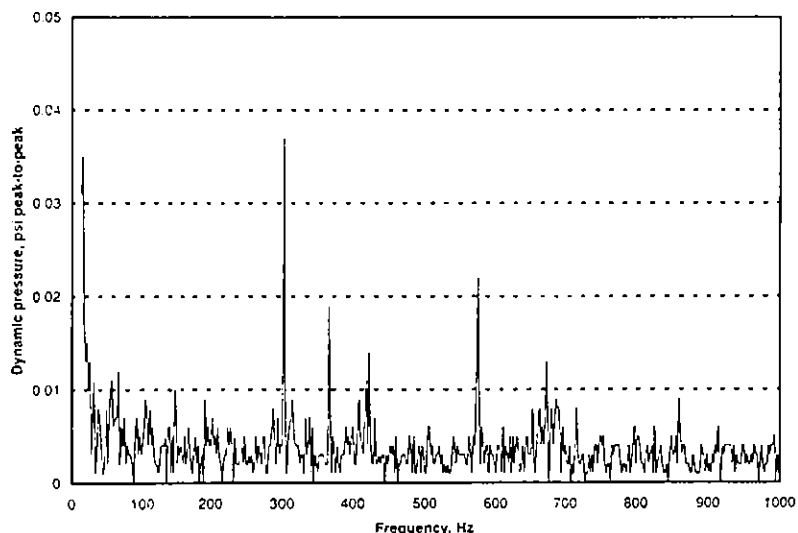


Figure 1: Dynamics measured for a Xonon combustor on a 1.5 MW Kawasaki gas turbine at base load.

# Operations Overview



- *Power Output*
- *Starting/Shutdown*
- *Loading/Unloading*

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## ***Power Output and Heat Rate***

Maintaining engine efficiency and power output are two important requirements for any new gas turbine technology. The Xonon™ combustion system can meet these requirements by achieving the desired turbine inlet temperature profile and by minimizing the total combustor pressure drop.

In adapting Xonon to a particular gas turbine, the Xonon combustion system is designed to accommodate the compressor outlet and turbine inlet conditions characteristic of that turbine. As a result, the Xonon combustor precisely matches the conditions of the turbine's conventional combustor, allowing the turbine to achieve the same level of performance.

In addition, the Xonon module and combustor include low-pressure drop preburners and fuel mixing systems to ensure minimal pressure loss.

In operational tests on a Kawasaki M1A-13A engine with Xonon, it was demonstrated that the turbine inlet temperature profile can be made to be identical to that of a conventional diffusion flame combustor. That is, Xonon was designed to match the turbine inlet temperature and the combustor pressure drop. This design ensures no impact on turbine performance.

Extensive load tests have also been conducted on the Kawasaki M1A-13A and have validated full power output and efficiency within 0.5% of a standard combustor.

## ***Starting and Shutdown***

The Xonon technology is a new approach to combustion for gas turbine engines. As such, it requires a control strategy geared to its unique capabilities and operating specifications.

Catalytica Combustion Systems engineers -- who developed the Xonon technology -- and Woodward Governor Company engineers -- specializing in controls -- have cooperatively developed such a control system for the start-up, loading and shutdown of a turbine incorporating Xonon.

A control system was developed for and tested on the Kawasaki M1A-13A engine with Xonon. The control system incorporates state of the art "feed-forward" and "model-based" control features, as well as conventional fixed schedules that allow the engine to be started, accelerated to its idle condition and synchronized to the grid with the push of a button.



This engine has been repeatedly started and synchronized to the grid in ambient conditions that range from 40°F to 100°F. The un-manned control system maintains baseload operations 24 hours a day, 7 days a week. Based on test results and regularly scheduled inspections, the control algorithm has proven to be safe and reliable for both the Xonon combustion system and the engine.

As this engine operation continues, the starting control strategy will be expanded to cover a wider range of ambient conditions.

### ***Loading and Unloading***

The Xonon system can deliver ultra-low emissions levels over a range of catalyst inlet temperatures and fuel/air ratios. This allows the system to maintain ultra-low emissions while responding to changes in the turbine load.

A turndown in load on a Xonon-equipped turbine is accomplished by lowering the fuel flow to the catalyst, while increasing the fuel flow to the preburner to maintain the inlet temperature to the catalyst. This maintains the Xonon catalyst within its optimal operating range for continued ultra-low emissions at part-load. Fuel flows are adjusted automatically by the combustor control system to maintain optimum performance regardless of changes in the turbine load.

The Xonon catalyst in a Kawasaki turbine has demonstrated the ability to meet emissions targets from base-load down to as low as 70% load conditions. The Xonon catalyst and the Woodward control systems have also demonstrated the capability to respond to step changes of as much as 80% in load.

The control strategy and system are being further developed to provide the load-step and full-load rejection requirements for other gas turbines.

Today, US gas turbine emission regulations require new installations to meet NOx emission levels of 2.5 to 25 parts per million (ppm) depending on location, attainment status and size of the installation. The general trend is toward the lower end of this range with permits in non-attainment areas requiring single digit NOx levels for all new permits.

There are a number of regulatory programs and pressures that are moving permits to lower levels. Several of the programs that we reported last year have been delayed because of a court action. However, the trend toward lower permitting levels continues.

The following sections review the status of these new programs and the impact of the older regulations.

### ***National Ambient Air Quality Standards (NAAQS)***

In June 1997, the NAAQS was revised by executive order. This would have resulted in lower NOx emission requirements by 2003. The Federal Appeals Court remanded the new standard to the EPA for more justification. It is expected that new levels will be required, but the timing may be delayed by a year or two.

### ***NOx SIP Call (SIP: State Implementation Plan)***

The EPA has determined that NOx emissions from some states are contributing to the ozone compliance problems in downwind states. The downwind states were referred to as the Ozone Transport Corridor (OTC). In September 1998, the EPA issued a NOx SIP Call which requires 22 Eastern states and the District of Columbia to revise their state implementation plans to achieve additional reductions in NOx. They indicate that these reductions are required to give the OTC states a chance at achieving ozone attainment. The only target is NOx, and it is expected that some or most states will target gas turbines as one of the potential sources for reduction.

### ***Technology Forcing Regulations***

The primary factor in moving the permitted levels lower stems from the New Source Review (NSR) regulations. In the last 25 years, the EPA was treating the NSR rule and its Best Available Control Technology (BACT) and Lowest Achievable Emission Rate (LAER) provisions as a technology forcing measure. This mechanism has been responsible for the introduction of many new emission control technologies, including gas turbine emission controls.

# Technology Options for New LAER/BACT Requirements



## The New Requirements

Current US air regulations for new gas turbines are resulting in air permits in the range of 2 to 15 parts per million (ppm) NO<sub>x</sub> for LAER requirements, and 9 to 25 ppm NO<sub>x</sub> for BACT requirements. Recent actions by the EPA and state regulators in several areas of the US indicate that required NO<sub>x</sub> levels are moving to the lower end of this range.

As air emission requirements tighten, new technologies will be required to meet them.

## NO<sub>x</sub> Control Options

There are two approaches to meeting the NO<sub>x</sub> emission requirements of less than 9 ppm – one is to prevent NO<sub>x</sub> formation, and the other is to clean it up in the exhaust. A pollution prevention technology, such as Xonon<sup>TM</sup>, is preferred because it minimizes production of NO<sub>x</sub> within the combustor itself. Clean-up systems – selective catalytic reduction and SCONOX – are large, expensive units added to the gas turbine exhaust to remove already produced pollutants.

| Feature                        | POLLUTION<br>CLEAN-UP |                 | POLLUTION<br>PREVENTION |
|--------------------------------|-----------------------|-----------------|-------------------------|
|                                | LPM +<br>SCR          | LPM +<br>SCONOX | Xonon                   |
| Emissions (ppm)                | < 2.5                 | < 2.5           | < 2.5                   |
| Environmental / Safety Impacts | Many                  | Some            | None                    |
| Application Limitations        | Some                  | Many            | None                    |
| Cost Impact                    | High                  | Highest         | Low                     |
| Proven in Practice             | Yes                   | In process      | In process              |

- Selective Catalytic Reduction (SCR), a pollution clean-up technology, is applied to gas turbines that already incorporate a lean-premix (LPM)<sup>1</sup> combustion system. SCRs have been used successfully with gas turbines for years. However, they do cause many adverse environmental impacts.



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650.965.4345 fax  
www.catalytica-inc.com

<sup>1</sup> LPM alone reduces NO<sub>x</sub> levels to 9 to 25 ppm.

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SCRs use ammonia, a toxic and hazardous substance that requires special handling and permitting and results in ammonia slip (a toxic emission). The SCR catalyst contains toxic metals that must be disposed of as a hazardous waste. In addition, the high capital and operating costs of SCR units have made some new projects less feasible, and applications are limited to gas turbines operating within specific temperature ranges.

- **SCONOX**, a newer clean-up technology, is dependent on LPM and seems to have overcome some of the adverse environmental impacts of SCR since it doesn't use ammonia. At this time, however, information on SCONOX is limited. Environmental and safety impacts need to be clarified, and application limitations must be addressed – SCONOX can only be applied to gas fuel units with heat-recovery systems.
- **Xonon** is a pollution prevention technology proven to achieve less than 2.5 ppm NO<sub>x</sub> without producing any adverse environmental impacts. It eliminates the need for an SCR, SCONOX or other expensive clean-up system since it combusts natural gas at temperatures below that which NO<sub>x</sub> can form without impacting turbine performance. Xonon has demonstrated ultra-low NO<sub>x</sub> during programs with Allison, GE, Kawasaki and Solar; and a Xonon-equipped Kawasaki gas turbine is successfully operating at Silicon Valley Power.

### ***Supporting New Technology***

New technologies, such as Xonon, continue to be proven in practice and offer significant reductions in NO<sub>x</sub> emissions. The better economics of Xonon can also facilitate the financing of new power plants to replace older plants that are environmentally harmful and produce substantially higher levels of air emissions.

Air emission regulators can play a big part in the process of establishing new technologies. By working with users and manufacturers, regulators can facilitate the commercialization of new technologies, such as Xonon, by supporting the initial field trials required to validate performance and reliability.



# ***The Xonon Impact on Hazardous Air Pollutants (HAPs)***



Title III of the Clean Air Act Amendments of 1990 (CAAA) identified 189 toxic substances as hazardous air pollutants. Acute and chronic exposure to HAPs can lead to increased health risks such as cancer. The CAAA directed the EPA to identify the source categories for HAPs and gas turbines were identified as a source category. In most states, the application for an "Authorization to Construct" for a gas turbine must include an analysis of the impact on health risk from any HAPs anticipated from the turbine.

## ***Xonon's HAPs Advantage***

The Xonon<sup>TM</sup> combustion system can significantly reduce organic HAPs emissions from gas turbines. This is achieved by eliminating conditions where organic HAPs typically form.

- The Xonon combustor operates with a very uniform fuel-air mixture (typically  $< \pm 2\%$ ). This in turn significantly reduces HAPs such as benzene, toluene and polyaromatic hydrocarbons that are produced from by-product chemistry in fuel-rich zones.
- The Xonon combustor also operates under leaner conditions than conventional lean-premix combustors. This reduces the amount of quenching required to achieve the desired turbine inlet temperature. Reduced quenching results in less formation of HAPs such as acetaldehyde, formaldehyde and acrolein.

## ***Xonon for HAPs Emissions***

Catalytica Combustion Systems, Inc. (CCSI) conducted a HAPs emission study to confirm Xonon's capability to achieve low HAPs emissions. CCSI used the following methodology to conduct the HAPs emissions test:

- Test methods were selected from the California Air Resources Board (CARB) database for gas turbine toxic emission tests (performed under the AB2588 Air Toxic Hot Spots program) to assure that the sampling and analytical procedures were sufficiently sensitive to detect levels found in prior toxic emission testing.
- Test samples were taken from the CCSI test facility.
- A qualified laboratory using standard analysis procedures analyzed the results.



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## ***Results***

The organic HAPs emissions measured from the Xonon combustor were significantly lower than emissions compared to gas turbine data from the CARB database. Formaldehyde emissions from Xonon were more than ten times lower than those of gas turbines listed in the CARB database, and all other organic HAPs emissions from Xonon were non-detectable.

Additionally, Catalytica performed a health risk assessment (HRA) comparing the test results with organic HAPs levels from the CARB database. The HRA was performed using a protocol developed by the California Air Pollution Control Officers Association (CAPCOA). This analysis concluded that the incremental health risk from a gas turbine using the Xonon combustion system is more than ten times better than that of similar turbines listed in the CARB database without Xonon.

# Reducing CO<sub>2</sub> with Natural Gas-Fired Turbines



## Coal: The Main Producer of CO<sub>2</sub>

The Kyoto Summit called for the US to reduce CO<sub>2</sub> emissions to 7% below 1990 levels by the year 2012. CO<sub>2</sub> is produced by the combustion of fossil fuels that contain carbon. Because coal derives most of its energy from carbon, it is a primary producer of CO<sub>2</sub>.

## Natural Gas: An Alternative to Coal

As an alternative to burning coal, natural gas-fired turbines offer an excellent opportunity for reducing CO<sub>2</sub>.

- Natural gas-fired turbines produced approximately 8% of the kilowatt-hours of electricity generated in the US in 1996.
- The US Department of Energy has projected that natural gas-fired turbines could produce more than half of the world's power within the next 20 years.

## Kyoto Accord Compliance Options

If conversion of coal plants to natural gas-fired turbines were the only action taken to comply with the Kyoto Accord, changing to high efficiency gas turbine systems would dramatically reduce the percentage of coal plants that would have to be converted. The table below shows this comparison.

| COMPLIANCE OPTIONS |                               | COAL PLANT CONVERSION<br>NEEDED TO MEET<br>KYOTO ACCORD |
|--------------------|-------------------------------|---|
| From               | To                            |   |
| Coal Steam Plant   | Natural Gas<br>Steam Plant    | 45%   |
| Coal Steam Plant   | Gas Turbine<br>Combined Cycle | 28%   |
| Coal Steam Plant   | Gas Turbine<br>Cogeneration   | 26%   |



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# Technology Options for US Air Emission Compliance



In the United States, air emissions regulatory compliance requirements are technology driven. All new sources must demonstrate the use of emissions technology or methods that are BACT or LAER. These determinations are made on a case-by-case basis.

- BACT (Best Available Control Technology) is required in areas that are in "attainment" of the National Ambient Air Quality Standards (NAAQS).
- LAER (Lowest Achievable Emission Rate) is required in "non-attainment" areas that do not meet the NAAQS.

A BACT technology determination takes into account the cost-effectiveness of available emissions reductions. A LAER technology determination typically does not consider cost-effectiveness.

In non-attainment areas, permitted emissions must also be "offset" or matched by emissions reductions from another source.

In other words, the "required emission rate" for a new project actually depends on its location and its attainment status, which will establish the corresponding regulatory compliance requirements. A project's required emission rate will also be determined by the gas turbine application, along with the availability, cost, and performance of available emissions control alternatives available for that application.

The following tables provide a general survey of today's prevailing emissions technologies.

| ATTAINMENT AREAS (REQUIRING BACT) |  |  |
|-----------------------------------|--|--|
| GT Rated Output                   | Cogen/Combined Cycle                     | Peaking Gen/Mech Drive                             |
| < 15 MW                           | LPM (some OEMs may require SCR) or Xonon | LPM or Xonon                                       |
| 15-70 MW                          | LPM (some OEMs may require SCR) or Xonon | LPM with potential operating restrictions or Xonon |
| > 70 MW                           | LPM + SCR or Xonon                       | LPM with potential operating restrictions or Xonon |



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### NON-ATTAINMENT AREAS (REQUIRING LAER)

| GT Rated Output | Cogen/Combined Cycle  | Peaking Gen/Mech Drive                                |
|-----------------|-----------------------|---|
| < 15 MW         | LPM + SCR<br>or Xonon | LPM with potential operating<br>restrictions or Xonon |
| 15–70 MW        | LPM + SCR<br>or Xonon | LPM with potential operating<br>restrictions or Xonon |
| > 70 MW         | LPM + SCR<br>or Xonon | LPM with potential operating<br>restrictions or Xonon |

Air emissions regulations are, by their nature, technology forcing and applicants may also propose greater emissions reductions to accelerate processing of their permits or to reduce the offset requirements. Therefore, today's prevailing emissions rates may not be adequate for tomorrow's projects.

Even where not strictly required, lower emissions can contribute economic value to a project through reduced offset requirements, fewer operating restrictions, greater siting flexibility, or accelerated plant startup through more rapid permitting.

In summary, technologies such as Xonon that offer lower emissions and/or lower compliance costs have potential value to projects.

Recently, the trend has changed. Continually pushing lower levels without concern for economic impact stifles the replacement of older higher-polluting systems with newer, cleaner technologies. The new direction is towards incentive-based regulations instead of command and control programs. The SO<sub>2</sub> allowances under the Acid Rain Program or RECLAIM in the Los Angeles Basin are examples of incentive-based programs that have worked quite well. Most new programs are headed in this direction.

## ***Supporting Natural Gas-Fired Turbines***

Within the increasingly stringent regulatory environment, an important new technology has emerged to accelerate the trend toward the efficient use of natural gas-fueled turbines.

CCSI's breakthrough Xonon<sup>TM</sup> combustion system is the first technology to virtually eliminate emissions of oxides of nitrogen (NOx) to less than 2.5 parts per million. It provides both environmental and economic benefits to both gas turbine manufacturers and power generators since it expedites permitting, eliminates expensive exhaust clean-up systems, has no impact on operating performance and avoids adverse environmental impacts.

**APPENDIX D**

**CRITERIA AND TOXIC POLLUTANT INFORMATION**





## **Guidance for Power Plant Siting and Best Available Control Technology**

**As Approved by the Air Resources Board on July 22, 1999**

**Stationary Source Division  
Issued September 1999**



- area attainment status,
- gas turbine exhaust gas temperature for simple-cycle power plant configuration (for example, use of aeroderived versus industrial frame gas turbine), and
- use and function of gas turbine.

It is the responsibility of the permitting agency to make its own BACT determination for the class and category of gas turbine application. The BACT emission levels are intended to apply to the emission concentrations as exhausted from the stacks. Summaries of information and findings utilized in assessing BACT for gas turbine emissions follow the tables. Supporting material is presented in Appendix C.

**Table III-1: Summary of BACT for the Control of Emissions from Stationary Gas Turbines Used for Simple-Cycle Power Plant Configurations**

| NO <sub>x</sub>  | CO   | VOC   | PM <sub>10</sub>   | SO <sub>x</sub>   |
|--|--|---|--|---|
| 5 ppmvd @<br>15% O <sub>2</sub> ,<br>3-hour rolling<br>average | 6 ppmvd @<br>15% O <sub>2</sub> ,<br>3-hour rolling<br>average | 2 ppmvd @<br>15% O <sub>2</sub> ,<br>3-hour rolling<br>average<br>OR<br>0.0027 pounds<br>per MMBtu<br>(based on<br>higher heating<br>value) | An emission<br>limit<br>corresponding to<br>natural gas with<br>fuel sulfur<br>content of no<br>more than<br>1 grain/100 scf | An emission limit<br>corresponding to<br>natural gas with fuel<br>sulfur content of no<br>more than<br>1 grain/100 scf (no<br>more than<br>0.55 ppmvd<br>@ 15% O <sub>2</sub> ) |



## Toxics Emission Factors from Combustion Process

Table I- EF FOR NATURAL GAS COMBUSTION (LB / MMCF)

*EXTERNAL COMBUSTION \**

| <u>POLLUTANT</u> | <u>CAS NO.</u> | <u>&lt;10 MMBTUH</u> | <u>10-100<br/>MMBTUH</u> | <u>&gt;100<br/>MMBTUH</u> | <u>FLARE</u> |
|------------------|----------------|----------------------|--------------------------|---------------------------|--------------|
| Benzene          | 71432          | 0.008                | 0.0058                   | 0.0017                    | 0.1152       |
| Formaldehyde     | 50000          | 0.017                | 0.0123                   | 0.0036                    | 1.1376       |
| PAH'S **         | 1151           | 0.0004               | 0.0004                   | 0.0004                    | 0.0273       |
| Naphthalene      | 91203          | 0.0003               | 0.0003                   | 0.0003                    | N/A          |
| Acetaldehyde     | 75070          | 0.0043               | 0.0031                   | 0.0009                    | 0.1138       |
| Acrolein         | 107028         | 0.0027               | 0.0027                   | 0.0008                    | 0.0114       |
| Propylene        | 115071         | 0.731                | 0.53                     | 0.01553                   | 2.016        |
| Toluene          | 108883         | 0.0366               | 0.0265                   | 0.0078                    | 0.0576       |
| Xylenes          | 1210           | 0.0272               | 0.0197                   | 0.0058                    | 0.0576       |
| Ethylbenzene     | 100414         | 0.0095               | 0.0069                   | 0.002                     | N/A          |
| Hexane           | 110543         | 0.0063               | 0.0046                   | 0.0013                    | N/A          |

*INTERNAL COMBUSTION*

| <u>POLLUTANT</u> | <u>CAS NO.</u> | <u>&lt; 1000 HP</u> | <u>&gt; 1000 HP</u> | <u>TURBINE</u> |
|------------------|----------------|---------------------|---------------------|----------------|
| Benzene          | 71432          | 3.257               | 3.9084              | 0.0113         |
| Formaldehyde     | 50000          | 32.4963             | 38.9956             | 0.094          |
| PAH'S **         | 1151           | 0.1964              | 0.1964              | 0.001          |
| Naphthalene      | 91203          | 0.1785              | 0.1785              | 0.0008         |
| Acetaldehyde     | 75070          | 0.944               | 1.1328              | 0.037          |
| Acrolein         | 107028         | 0.3783              | 0.454               | 0.009          |
| Propylene        | 115071         | 16.2259             | 19.4711             | 1.0522         |
| Toluene          | 108883         | 1.1145              | 1.3374              | 0.0726         |
| Xylenes          | 1210           | 0.4048              | 0.4858              | 0.0298         |
| Hexane           | 115043         | 0.7491              | 0.8989              | 1.75           |
| Ethylbenzene     | 100414         | 0.3257              | 0.3908              | 0.0132         |

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Table 3.1-1. EMISSION FACTORS FOR NITROGEN OXIDES (NO<sub>x</sub>) AND CARBON MONOXIDE (CO) FROM STATIONARY GAS TURBINES

| Emission Factors <sup>a</sup>              |   |                           |   |                           |
|--|---|---------------------------|---|---------------------------|
| Turbine Type                               | Nitrogen Oxides                         |                           | Carbon Monoxide                         |                           |
| Natural Gas-Fired Turbines <sup>b</sup>    | (lb/MMBtu) <sup>c</sup><br>(Fuel Input) | Emission Factor<br>Rating | (lb/MMBtu) <sup>c</sup><br>(Fuel Input) | Emission Factor<br>Rating |
| Uncontrolled                               | 3.2 E-01                                | A                         | 8.2 E-02 <sup>d</sup>                   | A                         |
| Water-Steam Injection                      | 1.3 E-01                                | A                         | 3.0 E-02                                | A                         |
| Lean-Premix                                | 9.9 E-02                                | D                         | 1.5 E-02                                | D                         |
| Distillate Oil-Fired Turbines <sup>e</sup> | (lb/MMBtu) <sup>f</sup><br>(Fuel Input) | Emission Factor<br>Rating | (lb/MMBtu) <sup>f</sup><br>(Fuel Input) | Emission Factor Rating    |
| Uncontrolled                               | 8.8 E-01                                | C                         | 3.3 E-03                                | C                         |
| Water-Steam Injection                      | 2.4 E-01                                | B                         | 7.6 E-02                                | C                         |
| Landfill Gas-Fired Turbines <sup>g</sup>   | (lb/MMBtu) <sup>h</sup><br>(Fuel Input) | Emission Factor<br>Rating | (lb/MMBtu) <sup>h</sup><br>(Fuel Input) | Emission Factor Rating    |
| Uncontrolled                               | 1.4 E-01                                | A                         | 4.4 E-01                                | A                         |
| Digester Gas-Fired Turbines <sup>j</sup>   | (lb/MMBtu) <sup>k</sup><br>(Fuel Input) | Emission Factor<br>Rating | (lb/MMBtu) <sup>k</sup><br>(Fuel Input) | Emission Factor Rating    |
| Uncontrolled                               | 1.6 E-01                                | D                         | 1.7 E-02                                | D                         |

<sup>a</sup> Factors are derived from units operating at high loads (≥80 percent load) only. For information on units operating at other loads, consult the background report for this chapter (Reference 16), available at "www.epa.gov/ttn/chief".

<sup>b</sup> Source Classification Codes (SCCs) for natural gas-fired turbines include 2-01-002-01, 2-02-002-01, 2-02-002-03, 2-03-002-02, and 2-03-002-03. The emission factors in this table may be converted to other natural gas heating values by multiplying the given emission factor by the ratio of the specified heating value to this average heating value.

<sup>c</sup> Emission factors based on an average natural gas heating value (HHV) of 1020 Btu/scf at 60°F. To convert from (lb/MMBtu) to (lb/10<sup>6</sup> scf), multiply by 1020.

<sup>d</sup> It is recognized that the uncontrolled emission factor for CO is higher than the water-steam injection and lean-premix emission factors, which is contrary to expectation. The EPA could not identify the reason for this behavior, except that the data sets used for developing these factors are different.

<sup>e</sup> SCCs for distillate oil-fired turbines include 2-01-001-01, 2-02-001-01, 2-02-001-03, and 2-03-001-02.

<sup>f</sup> Emission factors based on an average distillate oil heating value of 139 MMBtu/10<sup>3</sup> gallons. To convert from (lb/MMBtu) to (lb/10<sup>3</sup> gallons), multiply by 139.

<sup>g</sup> SCC for landfill gas-fired turbines is 2-03-008-01.

<sup>h</sup> Emission factors based on an average landfill gas heating value of 400 Btu/scf at 60°F. To convert from (lb/MMBtu), to (lb/10<sup>6</sup> scf) multiply by 400.

<sup>j</sup> SCC for digester gas-fired turbine is 2-03-007-01.

<sup>k</sup> Emission factors based on an average digester gas heating value of 600 Btu/scf at 60°F. To convert from (lb/MMBtu) to (lb/10<sup>6</sup> scf) multiply by 600.

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Table 3.1-2a. EMISSION FACTORS FOR CRITERIA POLLUTANTS AND GREENHOUSE GASES FROM STATIONARY GAS TURBINES

| Emission Factors <sup>a</sup> - Uncontrolled |   |                           |  |                           |
|--|---|---------------------------|--|---------------------------|
| Pollutant                                    | Natural Gas-Fired Turbines <sup>b</sup> |                           | Distillate Oil-Fired Turbines <sup>d</sup> |                           |
|  | (lb/MMBtu) <sup>c</sup><br>(Fuel Input) | Emission Factor<br>Rating | (lb/MMBtu) <sup>c</sup><br>(Fuel Input)    | Emission Factor<br>Rating |
| CO <sub>2</sub> <sup>f</sup>                 | 110                                     | A                         | 157  | A                         |
| N <sub>2</sub> O                             | 0.003 <sup>g</sup>                      | E                         | ND   | NA                        |
| Lead   | ND                                      | NA                        | 1.4 E-05                                   | C                         |
| SO <sub>2</sub>                              | 0.945 <sup>h</sup>                      | B                         | 1.015 <sup>h</sup>                         | B                         |
| Methane                                      | 8.6 E-03                                | C                         | ND   | NA                        |
| VOC  | 2.1 E-03                                | D                         | 4.1 E-04 <sup>j</sup>                      | E                         |
| TOC <sup>k</sup>                             | 1.1 E-02                                | B                         | 4.0 E-03 <sup>j</sup>                      | C                         |
| PM (condensable)                             | 4.7 E-03 <sup>l</sup>                   | C                         | 7.2 E-03 <sup>l</sup>                      | C                         |
| PM (filterable)                              | 1.9 E-03 <sup>l</sup>                   | C                         | 4.3 E-03 <sup>l</sup>                      | C                         |
| PM (total)                                   | 6.6 E-03 <sup>l</sup>                   | C                         | 1.2 E-02 <sup>l</sup>                      | C                         |

<sup>a</sup> Factors are derived from units operating at high loads ( $\geq 80$  percent load) only. For information on units operating at other loads, consult the background report for this chapter (Reference 16), available at "www.epa.gov/ttn/chief". ND = No Data, NA = Not Applicable.

<sup>b</sup> SCCs for natural gas-fired turbines include 2-01-002-01, 2-02-002-01 & 03, and 2-03-002-02 & 03.

<sup>c</sup> Emission factors based on an average natural gas heating value (HHV) of 1020 Btu/scf at 60°F. To convert from (lb/MMBtu) to (lb/10<sup>6</sup> scf), multiply by 1020. Similarly, these emission factors can be converted to other natural gas heating values.

<sup>d</sup> SCCs for distillate oil-fired turbines are 2-01-001-01, 2-02-001-01, 2-02-001-03, and 2-03-001-02.

<sup>e</sup> Emission factors based on an average distillate oil heating value of 139 MMBtu/10<sup>3</sup> gallons. To convert from (lb/MMBtu) to (lb/10<sup>3</sup> gallons), multiply by 139.

<sup>f</sup> Based on 99.5% conversion of fuel carbon to CO<sub>2</sub> for natural gas and 99% conversion of fuel carbon to CO<sub>2</sub> for distillate oil. CO<sub>2</sub> (Natural Gas) [lb/MMBtu] = (0.0036 scf/Btu)(%CON)(C)(D), where %CON = weight percent conversion of fuel carbon to CO<sub>2</sub>, C = carbon content of fuel by weight, and D = density of fuel. For natural gas, C is assumed at 75%, and D is assumed at 4.1 E+04 lb/10<sup>6</sup>scf. For distillate oil, CO<sub>2</sub> (Distillate Oil) [lb/MMBtu] = (26.4 gal/MMBtu) (%CON)(C)(D), where C is assumed at 87%, and the D is assumed at 6.9 lb/gallon.

<sup>g</sup> Emission factor is carried over from the previous revision to AP-42 (Supplement B, October 1996) and is based on limited source tests on a single turbine with water-steam injection (Reference 5).

<sup>h</sup> All sulfur in the fuel is assumed to be converted to SO<sub>2</sub>. S = percent sulfur in fuel. Example, if sulfur content in the fuel is 3.4 percent, then S = 3.4. If S is not available, use 3.4 E-03 lb/MMBtu for natural gas turbines, and 3.3 E-02 lb/MMBtu for distillate oil turbines (the equations are more accurate).

<sup>j</sup> VOC emissions are assumed equal to the sum of organic emissions.

<sup>k</sup> Pollutant referenced as THC in the gathered emission tests. It is assumed as TOC, because it is based on EPA Test Method 25A.

<sup>l</sup> Emission factors are based on combustion turbines using water-steam injection.

GE AERO ENERGY PRODUCTS GE GE10: Estimated Average Engine Performance NOT FOR GUARANTEE NAT GAS  
 Done by NP 12 1800 2 36 35 PMGE10-800124  
 City of Colton, California

CASE # 209  
 AMBIENT  
 DB °F 53.0  
 WB °F 51.3  
 RH % 60.0  
 ALT. FT 1000  
 ENGINE INLET  
 TEMP. °F 53.0  
 RH % 60.0  
 CONDITIONING NONE  
 TONS of KBTU 0

KW GEN TERM 10464  
 Btu/kWh LHV 11113  
 FUEL  
 MMBtu/hr LHV 115.3  
 lb/hr 6,130

NOZZLE WATER  
 lb/hr 0  
 °F 0

COMPRESSOR STEAM  
 lb/hr 0  
 °F 0

INLET LOSS, inH2O 4.00  
 EXHAUST LOSS inH2O 4.00

PT SPEED, rpm 0  
 COMP DISCH. psia 219.2  
 COMP DISCH. °F 775

GEARBOX EFF 0.99  
 GENERATOR EFF 0.975

EXHAUST PARAMETERS  
 °F 528  
 lb/s 93.8  
 lb/hr 355680  
 Cp Btu/lb-R 0.2722

EMISSIONS (NOT FOR USE IN ENVIRONMENTAL PERMITS: Ref @ 15% O2)  
 NOx, ppmvd 25  
 NOx, lb/hr 12  
 CO, ppmvd 20  
 CO, lb/hr 7

EXH WGT % WET (NOT FOR USE IN ENVIRONMENTAL PERMITS)  
 AR 13.152  
 N2 73.8766  
 O2 15.3192  
 CO2 4.4425  
 H2O 4.0343

EXH MOLE % DRY (NOT FOR USE IN ENVIRONMENTAL PERMITS)  
 AR 1.0042  
 N2 80.3760  
 O2 15.5432  
 CO2 3.0766  
 H2O 0.0000

## Gas Turbine Emissions

### Ratings

|                                      |       |
|--------------------------------------|-------|
| Input Rating (MMBtu/hr):             | 465.2 |
| Average hours of operation per day:  | 8     |
| Average days of operation per week:  | 5     |
| Average weeks of operation per year: | 30    |
| Average Loading (%):                 | 95    |
| Maximum hours of operation per day:  | 24    |
| Maximum days of operation per month: | 30    |
| Maximum weeks of operation per year: | 52    |
| Maximum days per week:               | 7     |
| Maximum Annual Hours                 | 1785  |

### Legend

|      |  |
|------|--|
| U-EF | Emission Factor for uncontrolled emissions   |
| C-EF | Net emission factor for controlled emissions |
| AHU  | Average hourly uncontrolled emissions        |
| AHC  | Average hourly controlled emissions          |
| MHU  | Maximum hourly uncontrolled emissions        |
| MHC  | Maximum hourly controlled emissions          |
| MDU  | Maximum daily uncontrolled emissions         |
| MDC  | Maximum daily controlled emissions           |
| AA   | Annual average controlled emissions          |
| APTE | Annual potential to emit                     |
| 30DA | Thirty day average daily emissions           |

|              | U-EF<br>(lb/MMBtu) | C-EF<br>(lb/MMBtu) | AHU<br>(lb/hr) | AHC<br>(lb/hr) | MHU<br>(lb/hr) | MHC<br>(lb/hr) | MDU<br>(lb/day) | MDC<br>(lb/day) | AA<br>(lb/yr) | APTE<br>(tons/yr) | 30DA<br>(lb/day) |
|--------------|--------------------|--------------------|----------------|----------------|----------------|----------------|-----------------|-----------------|---------------|-------------------|------------------|
| <b>ROG</b>   | 0.0030             | 0.0030             | 1.33           | 1.33           | 1.40           | 1.40           | 33.5            | 33.5            | 2367          | 1.25              | 33.5             |
| <b>UNROG</b> | 0.0089             | 0.0089             | 3.93           | 3.93           | 4.14           | 4.14           | 0.0             | 99.4            | 7021          | 3.70              | 99.4             |
| <b>SOx</b>   | 0.0034             | 0.0034             | 1.50           | 1.50           | 1.58           | 1.58           | 38.0            | 38.0            | 2682          | 1.41              | 38.0             |
| <b>CO</b>    | 0.0248             | 0.0248             | 10.96          | 10.96          | 11.54          | 11.54          | 276.9           | 276.9           | 19564         | 10.30             | 276.9            |
| <b>PM10</b>  | 0.0066             | 0.0066             | 2.92           | 2.92           | 3.07           | 3.07           | 73.7            | 73.7            | 5206          | 2.74              | 73.7             |
| <b>NOx</b>   | 0.0240             | 0.0240             | 10.62          | 10.62          | 11.18          | 11.18          | 268.4           | 268.4           | 18962         | 9.98              | 268.4            |

### Emission Rate Source

|      |   |
|------|---|
| ROG  | CARB 1999 BACT guidance - Table I (.0027 lb/mmBTUhhv) |
| SOx  | AP42  |
| CO   | 10 ppmv Vendor Guarantee                              |
| PM10 | AP42  |
| NOx  | 5 ppmv 1999 CARB BACT guidance                        |

## Gas Turbine Emissions

| Ratings                              |       |      |  | Legend                                       |  |
|--------------------------------------|-------|------|--|--|--|
| Input Rating (MMBtu/hr):             | 465.2 | U-EF |  | Emission Factor for uncontrolled emissions   |  |
| Average hours of operation per day:  | 5     | C-EF |  | Net emission factor for controlled emissions |  |
| Average days of operation per week:  | 5     | AHU  |  | Average hourly uncontrolled emissions        |  |
| Average weeks of operation per year: | 17    | AHC  |  | Average hourly controlled emissions          |  |
| Average Loading (%):                 | 95    | MHU  |  | Maximum hourly uncontrolled emissions        |  |
| Maximum hours of operation per day:  | 24    | MHC  |  | Maximum hourly controlled emissions          |  |
| Maximum days of operation per month: | 30    | MDU  |  | Maximum daily uncontrolled emissions         |  |
| Maximum weeks of operation per year: | 52    | MDC  |  | Maximum daily controlled emissions           |  |
| Maximum days per week:               | 7     | AA   |  | Annual average controlled emissions          |  |
| Maximum Annual Hours                 | 423   | APTE |  | Annual potential to emit                     |  |
|                                      |       | 30DA |  | Thirty day average daily emissions           |  |

|              | U-EF<br>(lb/MMBtu) | C-EF<br>(lb/MMBtu) | AHU<br>(lb/hr) | AHC<br>(lb/hr) | MHU<br>(lb/hr) | MHC<br>(lb/hr) | MDU<br>(lb/day) | MDC<br>(lb/day) | AA<br>(lb/yr) | APTE<br>(tons/yr) | 30DA<br>(lb/day) |
|--------------|--------------------|--------------------|----------------|----------------|----------------|----------------|-----------------|-----------------|---------------|-------------------|------------------|
| <b>ROG</b>   | 0.0030             | 0.0030             | 1.33           | 1.33           | 1.40           | 1.40           | 33.5            | 33.5            | 561           | 0.30              | 33.5             |
| <b>UNROG</b> | 0.0089             | 0.0089             | 3.93           | 3.93           | 4.14           | 4.14           | 0.0             | 99.4            | 1664          | 0.88              | 99.4             |
| <b>SOx</b>   | 0.0034             | 0.0034             | 1.50           | 1.50           | 1.58           | 1.58           | 38.0            | 38.0            | 636           | 0.33              | 38.0             |
| <b>CO</b>    | 0.0495             | 0.0495             | 21.88          | 21.88          | 23.03          | 23.03          | 552.7           | 552.7           | 9254          | 4.87              | 552.7            |
| <b>PM10</b>  | 0.0066             | 0.0066             | 2.92           | 2.92           | 3.07           | 3.07           | 73.7            | 73.7            | 1234          | 0.65              | 73.7             |
| <b>NOx</b>   | 0.1016             | 0.1016             | 44.89          | 44.89          | 47.25          | 47.25          | 1134.0          | 1134.0          | 18987         | 9.99              | 1134.0           |

### Emission Rate Source

|      |   |
|------|---|
| ROG  | CARB 1999 BACT guidance - Table I (.0027 lb/mmBTUhhv) |
| SOx  | AP42  |
| CO   | 20 ppmv Guarantee                                     |
| PM10 | AP42  |
| NOx  | 25 ppmv guarantee                                     |



## Gas Turbine Emissions

### Ratings

|                                      |       |
|--------------------------------------|-------|
| Input Rating (MMBtu/hr):             | 116.3 |
| Average hours of operation per day:  | 8     |
| Average days of operation per week:  | 5     |
| Average weeks of operation per year: | 30    |
| Average Loading (%):                 | 95    |
| Maximum hours of operation per day:  | 24    |
| Maximum days of operation per month: | 30    |
| Maximum weeks of operation per year: | 52    |
| Maximum days per week:               | 7     |
| Maximum Annual Hours                 | 1785  |

### Legend

|      |  |
|------|--|
| U-EF | Emission Factor for uncontrolled emissions   |
| C-EF | Net emission factor for controlled emissions |
| AHU  | Average hourly uncontrolled emissions        |
| AHC  | Average hourly controlled emissions          |
| MHU  | Maximum hourly uncontrolled emissions        |
| MHC  | Maximum hourly controlled emissions          |
| MDU  | Maximum daily uncontrolled emissions         |
| MDC  | Maximum daily controlled emissions           |
| AA   | Annual average controlled emissions          |
| APTE | Annual potential to emit                     |
| 30DA | Thirty day average daily emissions           |

|              | U-EF<br>(lb/MMBtu) | C-EF<br>(lb/MMBtu) | AHU<br>(lb/hr) | AHC<br>(lb/hr) | MHU<br>(lb/hr) | MHC<br>(lb/hr) | MDU<br>(lb/day) | MDC<br>(lb/day) | AA<br>(lb/yr) | APTE<br>(tons/yr) | 30DA<br>(lb/day) |
|--------------|--------------------|--------------------|----------------|----------------|----------------|----------------|-----------------|-----------------|---------------|-------------------|------------------|
| <b>ROG</b>   | 0.0030             | 0.0030             | 0.3315         | 0.3315         | 0.3489         | 0.3489         | 8.4             | 8.4             | 592           | 0.31              | 8.4              |
| <b>UNROG</b> | 0.0089             | 0.0089             | 0.98           | 0.98           | 1.04           | 1.04           | 0.0             | 24.8            | 1755          | 0.92              | 24.8             |
| <b>SOx</b>   | 0.0034             | 0.0034             | 0.3756         | 0.3756         | 0.3954         | 0.3954         | 9.5             | 9.5             | 671           | 0.35              | 9.5              |
| <b>CO</b>    | 0.0248             | 0.0248             | 2.7400         | 2.7400         | 2.8842         | 2.8842         | 69.2            | 69.2            | 4891          | 2.57              | 69.2             |
| <b>PM10</b>  | 0.0066             | 0.0066             | 0.7292         | 0.7292         | 0.7676         | 0.7676         | 18.4            | 18.4            | 1302          | 0.69              | 18.4             |
| <b>NOx</b>   | 0.0240             | 0.0240             | 2.6557         | 2.6557         | 2.796          | 2.796          | 67.1            | 67.1            | 4740          | 2.49              | 67.1             |

### Emission Rate Source

|      |   |
|------|---|
| ROG  | CARB 1999 BACT guidance - Table I (.0027 lb/mmBTUhhv) |
| SOx  | AP42  |
| CO   | 10 ppmv Vendor Guarantee                              |
| PM10 | AP42  |
| NOx  | 5 ppmv 1999 CARB BACT guidance                        |

## Gas Turbine Emissions

| Ratings                              |       | Legend |  |
|--------------------------------------|-------|--------|--|
| Input Rating (MMBtu/hr):             | 116.3 | U-EF   | Emission Factor for uncontrolled emissions   |
| Average hours of operation per day:  | 5     | C-EF   | Net emission factor for controlled emissions |
| Average days of operation per week:  | 5     | AHU    | Average hourly uncontrolled emissions        |
| Average weeks of operation per year: | 17    | AHC    | Average hourly controlled emissions          |
| Average Loading (%):                 | 95    | MHU    | Maximum hourly uncontrolled emissions        |
| Maximum hours of operation per day:  | 24    | MHC    | Maximum hourly controlled emissions          |
| Maximum days of operation per month: | 30    | MDU    | Maximum daily uncontrolled emissions         |
| Maximum weeks of operation per year: | 52    | MDC    | Maximum daily controlled emissions           |
| Maximum days per week:               | 7     | AA     | Annual average controlled emissions          |
| Maximum Annual Hours                 | 423   | APTE   | Annual potential to emit                     |
|                                      |       | 30DA   | Thirty day average daily emissions           |

|              | U-EF<br>(lb/MMBtu) | C-EF<br>(lb/MMBtu) | AHU<br>(lb/hr) | AHC<br>(lb/hr) | MHU<br>(lb/hr) | MHC<br>(lb/hr) | MDU<br>(lb/day) | MDC<br>(lb/day) | AA<br>(lb/yr) | APTE<br>(tons/yr) | 30DA<br>(lb/day) |
|--------------|--------------------|--------------------|----------------|----------------|----------------|----------------|-----------------|-----------------|---------------|-------------------|------------------|
| <b>ROG</b>   | 0.0030             | 0.0030             | 0.33           | 0.33           | 0.35           | 0.35           | 8.4             | 8.4             | 140           | 0.07              | 8.4              |
| <b>UNROG</b> | 0.0089             | 0.0089             | 0.98           | 0.98           | 1.04           | 1.04           | 0.0             | 24.8            | 416           | 0.22              | 24.8             |
| <b>SOx</b>   | 0.0034             | 0.0034             | 0.38           | 0.38           | 0.40           | 0.40           | 9.5             | 9.5             | 159           | 0.08              | 9.5              |
| <b>CO</b>    | 0.0495             | 0.0495             | 5.47           | 5.47           | 5.76           | 5.76           | 138.2           | 138.2           | 2313          | 1.22              | 138.2            |
| <b>PM10</b>  | 0.0066             | 0.0066             | 0.73           | 0.73           | 0.77           | 0.77           | 18.4            | 18.4            | 308           | 0.16              | 18.4             |
| <b>NOx</b>   | 0.1016             | 0.1016             | 11.22          | 11.22          | 11.81          | 11.81          | 283.5           | 283.5           | 4747          | 2.50              | 283.5            |

### Emission Rate Source

|      |   |
|------|---|
| ROG  | CARB 1999 BACT guidance - Table I (.0027 lb/mmBTUhhv) |
| SOx  | AP42  |
| CO   | 20 ppmv Guarantee                                     |
| PM10 | AP42  |
| NOx  | 25 ppmv guarantee                                     |

## Calc of NOx Mass Emissions (lb/hr)

- ① From NOx conc @ stack conditions (15.54% O<sub>2</sub>)  
Using Fuel throughput & F Factor.

$$\begin{aligned}\text{NOx lb/MMBtu} &= \text{ppm} \times \text{MW} \times 2.593 \cdot 10^{-9} \times F_d \times (20.9 / (20.9 - \% \text{O}_2)) \\ &= 22.698 \times 46.01 \times 2.593 \cdot 10^{-9} \times 3910 \times (20.9 / (20.9 - 15.5432)) \\ &= 0.0919\end{aligned}$$

$$\begin{aligned}\text{NOx lb/hr} &= \text{lb/MMBtu} \times \text{MMBtu/hr (HHV)} \\ &= 0.0919 \times 128.72 \\ &= 11.832\end{aligned}$$

- ② From NOx Conc @ stack conditions (15.54% O<sub>2</sub>) Using calculated air flow

$$\begin{aligned}\text{NOx lb/hr} &= \text{ppm} \times \text{MW} \times 1.557 \cdot 10^{-7} \times \text{DSCFM} \\ &= 22.693 \times 46.01 \times 1.557 \cdot 10^{-7} \times 72,964.4 \\ &= 11.855\end{aligned}$$

- ③ From RECLAIM Emission Factors

$$\text{NOx } 25. \text{ppm @ } 15.5\% \text{O}_2 \times \frac{1}{0.26 \text{ lb/MMSCF}} = 96.15 \text{ lb/MMSCF}$$

$$\text{NOx } 96.15 \text{ lb/MMSCF} \times 0.1229 \text{ MMCF/hr} = 11.812 \text{ lb/hr}$$

## Calc of Exhaust Flow (DSCFM)

① From Given lb/hr of Exhaust

$$\text{lb/hr} = \text{ppm} \times \text{MW} \times 1.5575 \times 10^{-7} \times \text{DSCFM}$$

$$\text{DSCFM} = \text{lb/hr} / (\text{MW} \times 1.5575 \times 10^{-7} \times \text{ppm})$$

$$(\text{Wet}) \text{lb/hr} = 355,680$$

$$\text{MW} = 29.234 \text{ lb/lb-mole}$$

$$\text{ppm} = 1 \times 10^6 \frac{\mu\text{mole}}{\text{mole}}$$

$$\text{SCFM} = 355,680 / (29.234 \times 1 \times 10^6 \times 1.5575 \times 10^{-7})$$

$$\text{SCFM} = 73,141.7$$

(Actual O<sub>2</sub>)

② From Given Heat Input @ 116.3 MMBTU/hr (LHV)

$$\frac{116.3 \text{ MMBTU/hr}}{746 \text{ BTU/CF}} = 0.1229 \text{ MUCF/hr}$$

$$0.1229 \text{ MUCF/hr} \times 1047 = 128.72 \text{ MMBTU/hr (HHV)}$$

$$\text{DSCFM} = \text{MMBTU/hr} \times \frac{\text{DSCF}}{\text{MMBTU}} \times \left( \frac{20.9}{20.9 - 3.0} \right) \times \frac{1 \text{ hr}}{60 \text{ min}}$$

$$= 128.72 \times 3710 \times \left( \frac{20.9}{20.9 - 15.5432} \right) \times \frac{1}{60}$$

$$\text{DSCFM} = 72,904.4$$

③ From Given NO<sub>x</sub> lb/hr = 12, NO<sub>x</sub> @ 15% O<sub>2</sub> = 25 ppm

$$\text{NO}_x @ 15.54 (\text{Actual Stack O}_2) = 22.698 \text{ ppm}$$

$$\text{DSCFM} = \text{lb/hr} / (\text{MW} \times 1.5575 \times 10^{-7} \times \text{ppm})$$

$$\text{DSCFM} = 12 / (46.01 \times 1.5575 \times 10^{-7} \times 22.698)$$

$$\text{DSCFM} = 73,799.4$$

\* Scenario #2 (Heat Input) is best estimate,  
 Scenario #3 very close (1.2%). Diff likely due to rounding in  
 Scenario #1. Believe (lb/hr is wet) Assume (6.5% moisture)  
 #1 = 73,062.5 DSCFM = 0.2% diff

## Calc of Exhaust Flow (ACFM)

$$SCFM = DSCFM * \left( \frac{T_S}{T_{STD}} \right) * \left( \frac{P_S}{P_{STD}} \right)$$

$$SCFM = 72,904.4 * \left( \frac{1398}{528} \right) * \left( \frac{29.127}{29.92} \right)$$

$$SCFM = 186,567.3$$

$$ACFM = SCFM / \left( 1 - \frac{9.5 H_2O}{100} \right)$$

$$ACFM = 186,567.3 / \left( 1 - \left( \frac{9.5}{100} \right) \right)$$

$$ACFM = 199,537.2$$

$$\begin{aligned} \text{Assume } P_S &= P_{BAR} + P_{STATIC} \\ &= 29.2 - 0.073 \\ &= 29.127 \end{aligned}$$

(Static Pressure = -1.0 in wg)  
( $P_{BAR} = 29.2$  in Hg)

**APPENDIX E**

**AMBIENT AIR QUALITY IMPACT ANALYSIS AND  
SCREENING RISK ASSESSMENT INFORMATION**

**SCAQMD Rule 1401 - Tier 3 Screening Analysis**  
**Alliance Power, Inc. - Drew Substation**  
**Gas Turbine Generator**

**Screening Parameters:**

| X/Q<br>( $\mu\text{g}/\text{m}^3$ )(annual) | X/Q<br>( $\mu\text{g}/\text{m}^3$ )(hourly) | MET | LEA  |
|---|---|-----|------|
| 0.5627                                      | 4.6322                                      | 1   | 1.00 |

**Emission Calculations:**

| Compound     | Emission Parameters |         |          |         | X/Q<br>( $\mu\text{g}/\text{m}^3$ )(annual) | X/Q<br>( $\mu\text{g}/\text{m}^3$ )(hourly) |
|--------------|---------------------|---------|----------|---------|---|---|
|              | (lb/hr)             | (lb/yr) | (ton/yr) | (g/sec) |   |   |
| Acetaldehyde | 0.00410             | 35.90   | 0.01795  | 0.00052 | 0.00029                                     | 0.00239                                     |
| Acrolein     | 0.00100             | 8.73    | 0.00437  | 0.00013 | 0.00007                                     | 0.00058                                     |
| Benzene      | 0.00125             | 10.96   | 0.00548  | 0.00016 | 0.00009                                     | 0.00073                                     |
| Formaldehyde | 0.01041             | 91.21   | 0.04560  | 0.00131 | 0.00074                                     | 0.00608                                     |
| PAHS *       | 0.00011             | 0.97    | 0.00049  | 0.00001 | 0.00001                                     | 0.00006                                     |
| Toluene      | 0.00804             | 70.44   | 0.03522  | 0.00101 | 0.00057                                     | 0.00470                                     |
| Xylene       | 0.00330             | 28.91   | 0.01446  | 0.00042 | 0.00023                                     | 0.00193                                     |

**Tier 3 Screening Analysis:**

| Compound     | Maximum Individual Cancer Risk (MICR) |        |          | Chronic Hazard Index (HIC) |        |                                      |          | Acute Prameters |                                      |         |
|--------------|---------------------------------------|--------|----------|----------------------------|--------|--------------------------------------|----------|-----------------|--------------------------------------|---------|
|              | Unit Risk                             | MP     | MICR     | REL                        | MP     | X/Q                                  | HIC      | REL             | X/Q                                  | HIA     |
|              | Factor                                | Factor |          | Factor                     | Factor | ( $\mu\text{g}/\text{m}^3$ )(annual) |          | Factor          | ( $\mu\text{g}/\text{m}^3$ )(hourly) |         |
| Acetaldehyde | 2.70E-06                              | 1.0    | 7.85E-10 | 9.00E+00                   | 1.0    | 0.00029                              | 0.00003  | n/a             | n/a                                  | n/a     |
| Acrolein     | n/a                                   | n/a    | n/a      | n/a                        | n/a    | n/a                                  | n/a      | 1.90E-02        | 0.00058                              | 0.03065 |
| Benzene      | 2.90E-05                              | 1.0    | 2.58E-09 | 6.00E+00                   | 1.0    | 0.00009                              | 0.000015 | 1.30E+03        | 0.00073                              | 0.00000 |
| Formaldehyde | 6.00E-06                              | 1.0    | 4.43E-09 | 3.00E+00                   | 1.0    | 0.00074                              | 0.000246 | 9.40E-02        | 0.00608                              | 0.06470 |
| PAHS *       | 1.70E-03                              | 12.7   | 1.70E-07 | n/a                        | n/a    | n/a                                  | n/a      | n/a             | n/a                                  | n/a     |
| Toluene      | n/a                                   | n/a    | n/a      | 3.00E+02                   | 1.0    | 0.00057                              | 0.000002 | 3.70E+04        | 0.00470                              | 0.00000 |
| Xylene       | n/a                                   | n/a    | n/a      | 7.00E+02                   | 1.0    | 0.00023                              | 0.000000 | 2.20E+04        | 0.00193                              | 0.00000 |
| Total MICR:  |                                       |        | 1.77E-07 | HIC:                       |        |                                      | 0.00030  | HIA: 0.09535    |                                      |         |

**Notes:**

- Benzene uses an HIA adjustment factor of 0.88 to reflect its 6-hour average period.

**Table 1-A**  
**Air Quality Impact Analysis**  
**500 Hrs/Yr, 52' Stack, 25 ppm**  
**Alliance Power, Inc. - Century Substation**  
**March, 2001**

**Modeling Results:**

|           |        |                              |   |
|-----------|--------|------------------------------|---|
| 1st Max = | 4.6008 | (ug/m <sup>3</sup> )/(g/sec) | 1 - Hour Average Concentration                |
| 1st Max = | 3.0115 | (ug/m <sup>3</sup> )/(g/sec) | 8 - Hour Average Concentration                |
| 1st Max = | 1.4180 | (ug/m <sup>3</sup> )/(g/sec) | 24 - Hour Average Concentration               |
| 1st Max = | 0.0115 | (ug/m <sup>3</sup> )/(g/sec) | Annual Average Concentration (500 hours/year) |

**Air Quality Impact Analysis:**

| Pollutant        | Averaging Time | Emission Rate (g/sec) | Maximum Impact (ug/m <sup>3</sup> ) | SCAQMD / NSR Allowable Significant Change (ug/m <sup>3</sup> ) |
|------------------|----------------|-----------------------|-------------------------------------|--|
| NO <sub>x</sub>  | 1 - Hour       | 1.49                  | 6.8                                 | 20.0   |
| NO <sub>x</sub>  | Annual         | 1.06                  | 0.01                                | 1.0  |
| CO               | 1 - Hour       | 0.88                  | 4.1                                 | 1100.0   |
| CO               | 8 - Hour       | 0.88                  | 2.7                                 | 500.0  |
| PM               | 24 - Hour      | 0.10                  | 0.1                                 | 2.5  |
| PM <sub>10</sub> | Annual         | 0.10                  | 0.001                               | 1.0  |

**Note:**

- X/Q Max values (ug/m<sup>3</sup>/g/sec) are taken from the ISC 3 model.
- Impacts analysis utilized the standard stack release parameters.
- NO<sub>x</sub>: 25ppm.
- Annual Operations: 500 Hours/Scaled.
- June through October operations.
- 52' Stack Height.
- 1 Gas Turbine.



**Table 1-B**  
**Air Quality Impact Analysis**  
**500 Hrs/Yr, 52' Stack, 25 ppm**  
**Alliance Power, Inc. - Century Substation**  
**March, 2001**

**Equipment Information:**

|                             |                    |                   |
|-----------------------------|--------------------|-------------------|
| Equipment Type: Gas Turbine | Capacity: -        | Fuel: Natural Gas |
| Manufacturer: GE            | Output (MW): 10.25 | HHV:              |
| Model: PGT 10B1             |                    |                   |

**Emission Rates:**

| Pollutant                |  | Emission<br>Rate<br>(lbs/hr) | Emission<br>Rate<br>(g/s) |  | Comments   |
|--------------------------|--|------------------------------|---------------------------|--|--|
| NO <sub>x</sub>          |  | 11.8                         | 1.49                      |  | NO <sub>x</sub> : 25ppm<br>NO <sub>x</sub> Annual is a ratio of 0.71 (Total NO <sub>2</sub> to Total NO <sub>x</sub> ) |
| NO <sub>x</sub> (Annual) |  | 8.4                          | 1.06                      |  |  |
| CO                       |  | 7.0                          | 0.88                      |  |  |
| PM                       |  | 0.8                          | 0.10                      |  |  |
| PM <sub>10</sub>         |  | 0.8                          | 0.10                      |  |  |

**Notes:**

- NO<sub>x</sub>: 25ppm.
- Annual Operations: 500 Hours/Scaled.
- June through October operations.
- 52' Stack Height.
- 1 Gas Turbine.

**Table 2-A**  
**Air Quality Impact Analysis**  
**8760 Hrs/Yr, 52' Stack, 5 ppm**  
**Alliance Power, Inc. - Century Substation**  
**March, 2001**

**Modeling Results:**

|           |        |                              |   |
|-----------|--------|------------------------------|---|
| 1st Max = | 4.6322 | (ug/m <sup>3</sup> )/(g/sec) | 1 - Hour Average Concentration                |
| 1st Max = | 3.6617 | (ug/m <sup>3</sup> )/(g/sec) | 8 - Hour Average Concentration                |
| 1st Max = | 1.9196 | (ug/m <sup>3</sup> )/(g/sec) | 24 - Hour Average Concentration               |
| 1st Max = | 0.5627 | (ug/m <sup>3</sup> )/(g/sec) | Annual Average Concentration (500 hours/year) |

**Air Quality Impact Analysis:**

| Pollutant        | Averaging Time | Emission Rate (g/sec) | Maximum Impact (ug/m <sup>3</sup> ) | SCAQMD / NSR Allowable Significant Change (ug/m <sup>3</sup> ) |
|------------------|----------------|-----------------------|-------------------------------------|--|
| NO <sub>x</sub>  | 1 - Hour       | 0.30                  | 1.4                                 | 20.0   |
| NO <sub>x</sub>  | Annual         | 0.21                  | 0.12                                | 1.0  |
| CO               | 1 - Hour       | 0.88                  | 4.1                                 | 1100.0   |
| CO               | 8 - Hour       | 0.88                  | 3.2                                 | 500.0  |
| PM               | 24 - Hour      | 0.10                  | 0.2                                 | 2.5  |
| PM <sub>10</sub> | Annual         | 0.10                  | 0.055                               | 1.0  |

**Note:**

- X/Q Max values (ug/m<sup>3</sup>/g/sec) are taken from the ISC 3 model.
- Impacts analysis utilized the standard stack release parameters.
- NO<sub>x</sub>: 5ppm.
- Annual Operations: 8760 Hours/Unscaled.
- 52' Stack Height.
- 1 Gas Turbine.

**Table 2-B**  
**Air Quality Impacy Analysis**  
**8760 Hrs/Yr, 52' Stack, 5 ppm**  
**Alliance Power, Inc. - Century Substation**  
**March, 2001**

**Equipment Information:**

|  |                                   |                           |
|--|-----------------------------------|---------------------------|
| Equipment Type: Gas Turbine<br>Manufacturer: GE<br>Model: PGT 10B1 | Capacity: -<br>Output (MW): 10.25 | Fuel: Natural Gas<br>HHV: |
|--|-----------------------------------|---------------------------|

**Emission Rates:**

| Pollutant                |  | Emission<br>Rate<br>(lbs/hr) | Emission<br>Rate<br>(g/s) |  | Comments  |
|--------------------------|--|------------------------------|---------------------------|--|---|
| NO <sub>x</sub>          |  | 2.4                          | 0.30                      |  | NO <sub>x</sub> : 5ppm<br>NO <sub>x</sub> Annual is a ratio of 0.71 (Total NO <sub>2</sub> to Total NO <sub>x</sub> ) |
| NO <sub>x</sub> (Annual) |  | 1.7                          | 0.21                      |  |   |
| CO                       |  | 7.0                          | 0.88                      |  |   |
| PM                       |  | 0.8                          | 0.10                      |  |   |
| PM <sub>10</sub>         |  | 0.8                          | 0.10                      |  |   |

**Notes:**

- NO<sub>x</sub>: 5ppm.
- Annual Operations: 8760 Hours/Unscaled.
- 52' Stack Height.
- 1 Gas Turbine.

1

ISCST3 - (DATED 00101)

ISCST3X PC (32 BIT) VERSION 3.4.0  
(C) COPYRIGHT 1991-2000, TRINITY CONSULTANTS

Run Began on 3/07/2001 at 10:03:22

\*\* BREEZE ISC SUITE v3.4.0 - C:\TRINITY\ISC32\AllianceCentury1.dat  
\*\* T3, Dallas, TX

CO STARTING  
CO TITLEONE Alliance Power, Inc.  
CO TITLETWO Century Substation (1-Hour, 8-Hour, 24-Hour)  
CO MODELOPT CONC URBAN NOCALM  
CO AVERTIME 1 8 24  
CO POLLUTID OTHER  
CO TERRHGIS FLAT  
CO RUNORNOT RUN  
CO FINISHED

SO STARTING  
SO ELEVUNIT METERS  
SO LOCATION SRC1 POINT 0.0 0.0 0  
SO SRCPARAM SRC1 1.000000E+00 15.8496 770.9278 13.16821 3.01750  
SO EMISFACT SRC1 MONTH 0.0 0.0 0.0 0.0 0.0 1.0 1.0 1.0 1.0  
SO EMISFACT SRC1 MONTH 0.0 0.0  
SO SRCGROUP ALL  
SO FINISHED

Notes:

- 1 hour, 8 hour, 24 hour Only
- Flat Terrain, No Calm, Urban
- Monthly Emission Factor Adjustments
- Emission Rate Normalized @ 1.0 g/s

ISCST3 - VERSION 00101 \*\*\* Alliance Power, Inc.  
\*\*\* Century Substation (1-Hour, 8-Hour, 24-Hour)

\*\*\* 03/07/01

10:03:27

\*\*MODELOPTs:

PAGE

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CONC

URBAN FLAT

NOCALM

\*\*\* THE SUMMARY OF HIGHEST 1-HR RESULTS \*\*\*

\*\* CONC OF OTHER IN MICROGRAMS/M\*\*3

\*\*

DATE

NETWORK

GROUP ID

AVERAGE CONC

(YYMMDDHH)

RECEPTOR (XR, YR, ZELEV, ZFLAG)

OF TYPE GRID-

ID

-----

|     |      |                   |         |                   |           |          |       |       |    |    |
|-----|------|-------------------|---------|-------------------|-----------|----------|-------|-------|----|----|
| ALL | HIGH | 1ST HIGH VALUE IS | 4.60081 | ON 81101306: AT ( | -2000.00, | 1000.00, | 0.00, | 0.00) | DC | NA |
|     | HIGH | 2ND HIGH VALUE IS | 4.57951 | ON 81092705: AT ( | -2000.00, | 1200.00, | 0.00, | 0.00) | DC | NA |
|     | HIGH | 3RD HIGH VALUE IS | 4.57656 | ON 81080206: AT ( | -2000.00, | 1300.00, | 0.00, | 0.00) | DC | NA |
|     | HIGH | 4TH HIGH VALUE IS | 4.57325 | ON 81080104: AT ( | -2000.00, | 1300.00, | 0.00, | 0.00) | DC | NA |
|     | HIGH | 5TH HIGH VALUE IS | 4.57028 | ON 81061403: AT ( | -2000.00, | 1200.00, | 0.00, | 0.00) | DC | NA |

\*\*\* RECEPTOR TYPES: GC = GRIDCART  
GF = GRIDPOLR  
DC = DISCCART  
DF = DISCPOLR  
BD = BOUNDARY

\*\*\* ISCST3 - VERSION 00101 \*\*\*      \*\*\* Alliance Power, Inc.  
 \*\*\* Century Substation (1-Hour, 8-Hour, 24-Hour)

\*\*\* 03/07/0\*

10:03:27

\*\*MODELOPTs:

438

PAGE

CONC

URBAN FLAT

NOCALM

\*\*\* THE SUMMARY OF HIGHEST 8-HR RESULTS \*\*\*

\*\* CONC OF OTHER IN MICROGRAMS/M\*\*3      \*\*

| NETWORK | GROUP ID               | AVERAGE CONC | DATE<br>(YYMMDDHH) | RECEPTOR  | (XR, YR, ZELEV, ZFLAG) | OF TYPE | GRID-       |
|---------|------------------------|--------------|--------------------|-----------|------------------------|---------|-------------|
| ID      |                        |              |                    |           |                        |         |             |
| ALL     | HIGH 1ST HIGH VALUE IS | 3.01147      | ON 81080808: AT (  | -1900.00, | 600.00,                | 0.00,   | 0.00) DC NA |
|         | HIGH 2ND HIGH VALUE IS | 2.76985      | ON 81080808: AT (  | -1900.00, | 700.00,                | 0.00,   | 0.00) DC NA |
|         | HIGH 3RD HIGH VALUE IS | 2.72901      | ON 81091008: AT (  | -1800.00, | 600.00,                | 0.00,   | 0.00) DC NA |
|         | HIGH 4TH HIGH VALUE IS | 2.67681      | ON 81102408: AT (  | -2000.00, | 700.00,                | 0.00,   | 0.00) DC NA |
|         | HIGH 5TH HIGH VALUE IS | 2.59832      | ON 81102408: AT (  | -1900.00, | 700.00,                | 0.00,   | 0.00) DC NA |

\*\*\* RECEPTOR TYPES: GC = GRIDCART  
 GP = GRIDPOLR  
 DC = DISCCART  
 DP = DISCPOLR  
 BD = BOUNDARY

\*\*\* ISCST3 - VERSION 00101 \*\*\*      \*\*\* Alliance Power, Inc.  
10:03:27      \*\*\* Century Substation (1-Hour, 6-Hour, 24-Hour)

\*\*\* 03/07/01

\*\*MODELOPTs:

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\*\*\* THE SUMMARY OF HIGHEST 24-HR RESULTS \*\*\*

\*\* CONC OF OTHER      IN MICROGRAMS/M\*\*3      \*\*

| NETWORK  |                        | DATE         |                   | RECEPTOR               |         | OF TYPE |       | GRID- |
|----------|------------------------|--------------|-------------------|------------------------|---------|---------|-------|-------|
| GROUP ID |                        | AVERAGE CONC | (YYMMDDHH)        | (XR, YR, ZELEV, ZFLAG) |         |         |       | ID    |
| ALL      | HIGH 1ST HIGH VALUE IS | 1.41600      | ON 81091024: AT ( | -2000.00,              | 700.00, | 0.00,   | 0.00) | DC NA |
|          | HIGH 2ND HIGH VALUE IS | 1.30650      | ON 81090824: AT ( | -2000.00,              | 600.00, | 0.00,   | 0.00) | DC NA |
|          | HIGH 3RD HIGH VALUE IS | 1.22546      | ON 81102424: AT ( | -1900.00,              | 600.00, | 0.00,   | 0.00) | DC NA |
|          | HIGH 4TH HIGH VALUE IS | 1.18804      | ON 81080824: AT ( | -2000.00,              | 600.00, | 0.00,   | 0.00) | DC NA |
|          | HIGH 5TH HIGH VALUE IS | 1.13914      | ON 81091824: AT ( | -1800.00,              | 600.00, | 0.00,   | 0.00) | DC NA |

\*\*\* RECEPTOR TYPES: GC = GRIDCART  
GP = GRIDPOLR  
DC = DISCCART  
DP = DISCPOLR  
BD = BOUNDARY

\*\*\* ISCST3 - VERSION 00101 \*\*\*      \*\*\* Alliance Power, Inc.  
10:03:27                              \*\*\* Century Substation (1-Hour, 6-Hour, 24-Hour)

03/07/01

\*\*MODELOPTs:

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\*\*\* Message Summary : ISCST3 Model Execution \*\*\*

----- Summary of Total Messages -----

A Total of            0 Fatal Error Message(s)  
A Total of            0 Warning Message(s)  
A Total of            1396 Informational Message(s)  
A Total of            1396 Calm Hours Identified

\*\*\*\*\* FATAL ERROR MESSAGES \*\*\*\*\*  
\*\*\* NONE \*\*\*

\*\*\*\*\* WARNING MESSAGES \*\*\*\*\*  
\*\*\* NONE \*\*\*

\*\*\*\*\*  
\*\*\* ISCST3 Finishes Successfully \*\*\*  
\*\*\*\*\*



ISCST3 - (DATED 00101)

ISCST3X PC (32 BIT) VERSION 3.4.0  
(C) COPYRIGHT 1991-2000, TRINITY CONSULTANTS

Run Began on 3/07/2001 at 10:16:15

\*\* BREEZE ISC SUITE v3.4.2 - C:\TRINITY\ISC32\AllianceCentury2.dat  
\*\* T3, Dallas, TX

CO STARTING  
CO TITLEONE Alliance Power, Inc.  
CO TITLETWO Century Substation (Annual-500 hours)  
CO MODELOPT CONC URBAN NOCALM  
CO AVERTIME ANNUAL  
CO POLLUTID OTHER  
CO TERRHGT5 FLAT  
CO RUNCPNCT RUN  
CO FINISHED

SO STARTING  
SO ELEVUNIT METERS  
SO LOCATION SRC1 POINT 0.0 0.0 0  
SO SRCPARAM SRC1 5.700000E-02 15.8496 770.9276 13.16821 3.01752  
SO EMISFACT SRC1 MONTH 0.0 0.0 0.0 0.0 0.0 1.0 1.0 1.0 1.0 1.0  
SO EMISFACT SRC1 MONTH 0.0 0.0  
SO SRGGROUP ALL  
SO FINISHED

Notes:

- Annual @ 500 hours Only
- Flat Terrain, No Calm, Urban
- Monthly Emission Factor Adjustments
- Normalized Emission Rate Scaled To Reflect 500 hrs/year.

\*\*\* ISCST3 - VERSION 00101 \*\*\*      \*\*\* Alliance Power, Inc.  
 10:16:20      \*\*\* Century Substation (Annual-500 hours)

03/07/01

\*\*MODELOPTS:

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\*\*\* THE SUMMARY OF MAXIMUM ANNUAL ( 1 YRS) RESULTS \*\*\*

\*\* CONC OF OTHER IN MICROGRAMS/M\*\*3

\*\*

| GROUP ID | AVERAGE CONC                                | RECEPTOR (XR, YR, ZELEV, ZFLAG) | OF TYPE | NETWORK GRID-ID |
|----------|---|---------------------------------|---------|-----------------|
| ALL      | 1ST HIGHEST VALUE IS 0.01154 AT (-1700.00,  | 800.00,                         | 0.00,   | 0.00) DC NA     |
|          | 2ND HIGHEST VALUE IS 0.01150 AT (-1900.00,  | 900.00,                         | 0.00,   | 0.00) DC NA     |
|          | 3RD HIGHEST VALUE IS 0.01149 AT (-1800.00,  | 800.00,                         | 0.00,   | 0.00) DC NA     |
|          | 4TH HIGHEST VALUE IS 0.01144 AT (-1800.00,  | 900.00,                         | 0.00,   | 0.00) DC NA     |
|          | 5TH HIGHEST VALUE IS 0.01139 AT (-2000.00,  | 900.00,                         | 0.00,   | 0.00) DC NA     |
|          | 6TH HIGHEST VALUE IS 0.01138 AT (-1600.00,  | 700.00,                         | 0.00,   | 0.00) DC NA     |
|          | 7TH HIGHEST VALUE IS 0.01137 AT (-1600.00,  | 800.00,                         | 0.00,   | 0.00) DC NA     |
|          | 8TH HIGHEST VALUE IS 0.01133 AT (-1500.00,  | 700.00,                         | 0.00,   | 0.00) DC NA     |
|          | 9TH HIGHEST VALUE IS 0.01132 AT (-1900.00,  | 800.00,                         | 0.00,   | 0.00) DC NA     |
|          | 10TH HIGHEST VALUE IS 0.01132 AT (-2000.00, | 1000.00,                        | 0.00,   | 0.00) DC NA     |

\*\*\* ISCST3 - VERSION 00101 \*\*\*      \*\*\* Alliance Power, Inc.  
   \*\*\* Century Substation (Annual-500 hours)

\*\*\*      03/07/01  
\*\*\*

10:16:20

\*\*MODELOPTs:

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\*\*\* Message Summary : ISCST3 Model Execution \*\*\*

----- Summary of Total Messages -----

A Total of            0 Fatal Error Message(s)  
A Total of            0 Warning Message(s)  
A Total of            1398 Informational Message(s)  
A Total of            1398 Calm Hours Identified

\*\*\*\*\* FATAL ERROR MESSAGES \*\*\*\*\*  
\*\*\* NONE \*\*\*

\*\*\*\*\* WARNING MESSAGES \*\*\*\*\*  
\*\*\* NONE \*\*\*

\*\*\*\*\*  
\*\*\* ISCST3 Finishes Successfully \*\*\*  
\*\*\*\*\*

1

ISCST3 - (DATED 00101)

ISCST3X PC (32 BIT) VERSION 3.4.0  
(C) COPYRIGHT 1991-2000, TRINITY CONSULTANTS

Run Began on 3/07/2001 at 12:48:28

\*\* BREEZE ISC SUITE v3.4.2 - C:\TRINITY\ISC32\AllianceCentury3.dat  
\*\* T3, Dallas, TX

CO STARTING  
CO TITLEONE Alliance Power, Inc.  
CO TITLETWO Century Substation (Unscaled Annual-8760)  
CO MODELOPT CONC URBAN NCCALM  
CO AVERTIME 1 8 24 ANNUAL  
CO POLLUTID OTHER  
CO TERRHGT5 FLAT  
CO RUNORRCT RUN  
CO FINISHED  
  
SO STARTING  
SO ELEVUNIT METERS  
SO LOCATION SRC1 POINT 0.0 0.0 0  
SO SRCPARAM SRC1 1.000000E+00 15.8496 770.9278 13.16821 3.01752  
SO SRCGROUP ALL  
SO FINISHED

Notes:

- Full Run, No Scaled Emissions
- Flat Terrain, No Calm, Urban
- Emission Rate Normalized @ 1.0 g/s

\*\*\* ISCST3 - VERSION: 00101 \*\*\*

\*\*\* Alliance Power, Inc.

\*\*\* 03/07/01

\*\*\* Century Substation (Unscaled Annual-8760)

12:48:33

\*\*MODELOPTs:

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\*\*\* THE SUMMARY OF HIGHEST 1-HR. RESULTS \*\*\*

\*\* CONC OF OTHER IN MICROGRAMS/M\*\*3

\*\*

DATE

NETWORK

GROUP ID

AVERAGE CONC

(YYMMDDHH)

RECEPTOR (XR, YR, ZELEV, ZFLAG)

OF TYPE GRID-

-----

|     |      |                   |         |                   |           |          |       |       |    |    |
|-----|------|-------------------|---------|-------------------|-----------|----------|-------|-------|----|----|
| ALL | HIGH | 1ST HIGH VALUE IS | 4.63222 | ON 81122404: AT ( | -2000.00, | 1300.00, | 0.00, | 0.00) | DC | NA |
|     | HIGH | 2ND HIGH VALUE IS | 4.62822 | ON 81122604: AT ( | -2000.00, | 1000.00, | 0.00, | 0.00) | DC | NA |
|     | HIGH | 3RD HIGH VALUE IS | 4.62618 | ON 81122403: AT ( | -2000.00, | 1000.00, | 0.00, | 0.00) | DC | NA |
|     | HIGH | 4TH HIGH VALUE IS | 4.62515 | ON 81013006: AT ( | -2000.00, | 1000.00, | 0.00, | 0.00) | DC | NA |
|     | HIGH | 5TH HIGH VALUE IS | 4.61629 | ON 81122502: AT ( | -2000.00, | 1000.00, | 0.00, | 0.00) | DC | NA |

\*\*\* RECEPTOR TYPES: GC = GRIDCART  
GP = GRIDPOLR  
DC = DISCCART  
DP = DISCPOLR  
BD = BOUNDARY

\*\*\* ISCST3 - VERSION 00101 \*\*\*      \*\*\* Alliance Power, Inc.  
12:48:33      \*\*\* Century Substation (Unscaled Annual-8700)

\*\*\* 03/07/0

\*\*MODELOPTs:

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\*\*\* THE SUMMARY OF HIGHEST 8-HR RESULTS \*\*\*

\*\* CONC OF OTHER IN MICROGRAMS/M\*\*3      \*\*

| NETWORK  |                        | DATE         |                   | RECEPTOR (XR, YR, ZELEV, ZFLAG) |         |       |       | OF TYPE | GRID- |
|----------|------------------------|--------------|-------------------|---------------------------------|---------|-------|-------|---------|-------|
| GROUP ID |                        | AVERAGE CONC | (YYMMDDHH)        |                                 |         |       |       |         | ID    |
| ALL      | HIGH 1ST HIGH VALUE IS | 3.66171      | ON 81122508: AT ( | -2000.00,                       | 900.00, | 0.00, | 0.00) | DC      | NA    |
|          | HIGH 2ND HIGH VALUE IS | 3.36065      | ON 81122908: AT ( | -1900.00,                       | 800.00, | 0.00, | 0.00) | DC      | NA    |
|          | HIGH 3RD HIGH VALUE IS | 3.20960      | ON 81122908: AT ( | -1800.00,                       | 800.00, | 0.00, | 0.00) | DC      | NA    |
|          | HIGH 4TH HIGH VALUE IS | 3.11906      | ON 81121808: AT ( | -2000.00,                       | 900.00, | 0.00, | 0.00) | DC      | NA    |
|          | HIGH 5TH HIGH VALUE IS | 2.91520      | ON 81112308: AT ( | -2000.00,                       | 800.00, | 0.00, | 0.00) | DC      | NA    |

\*\*\* RECEPTOR TYPES: GC = GRIDCART  
GF = GRIDPOLR  
DC = DISCCART  
DP = DISCPOLR  
BD = BOUNDARY

\*\*\* ISCST3 - VERSION 00101 \*\*\*      \*\*\* Alliance Power, Inc.  
   \*\*\* Century Substation (Unscaled Annual-8760)

\*\*\*      03/07/01  
\*\*\*

12:48:33  
\*\*MODELOPTs:  
466  
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\*\*\* THE SUMMARY OF HIGHEST 24-HR RESULTS \*\*\*

\*\* CONC OF OTHER      IN MICROGRAMS/M\*\*3      \*\*

| NETWORK  |                        | DATE         |                   | RECEPTOR (XR, YR, ZELEV, ZFLAG) |         |       |       | OF TYPE | GRID- |
|----------|------------------------|--------------|-------------------|---------------------------------|---------|-------|-------|---------|-------|
| GROUP ID |                        | AVERAGE CONC | (YYMMDDHH)        |                                 |         |       |       |         |       |
| ID       |                        |              |                   |                                 |         |       |       |         |       |
| ALL      | HIGH 1ST HIGH VALUE IS | 1.91962      | ON 81122524: AT ( | -2000.00,                       | 900.00, | 0.00, | 0.00) | DC      | NA    |
|          | HIGH 2ND HIGH VALUE IS | 1.58838      | ON 81122624: AT ( | -1900.00,                       | 900.00, | 0.00, | 0.00) | DC      | NA    |
|          | HIGH 3RD HIGH VALUE IS | 1.60280      | ON 81012524: AT ( | -2000.00,                       | 800.00, | 0.00, | 0.00) | DC      | NA    |
|          | HIGH 4TH HIGH VALUE IS | 1.57154      | ON 81122624: AT ( | -1900.00,                       | 800.00, | 0.00, | 0.00) | DC      | NA    |
|          | HIGH 5TH HIGH VALUE IS | 1.51102      | ON 81012524: AT ( | -1800.00,                       | 800.00, | 0.00, | 0.00) | DC      | NA    |

\*\*\* RECEPTOR TYPES:    GC = GRIDCART  
                              GE = GRIDPOLR  
                              DC = DISCCART  
                              DE = DISCPOLR  
                              BD = BOUNDARY

ISCST3 - VERSION 00101 \*\*\* Alliance Power, Inc.  
 \*\*\* Century Substation (Unscaled Annual-6760)

\*\*\* 03/07/01

12:48:33

\*\*MODELOFTs:

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\*\*\* THE SUMMARY OF MAXIMUM ANNUAL ( 1 YRS) RESULTS \*\*\*

\*\* CONC OF OTHER IN MICROGRAMS/M\*\*3

\*\*

| GROUP ID | AVERAGE CONC   | RECEPTOR (XR, YR, ZELEV, ZFLAG) | OF TYPE | NETWORK GRID-ID |
|----------|--|---------------------------------|---------|-----------------|
| ALL      | 1ST HIGHEST VALUE IS 0.56274 AT ( -1800.00, 800.00, 0.00, 0.00)  | DC                              | NA      |                 |
|          | 2ND HIGHEST VALUE IS 0.55963 AT ( -1700.00, 700.00, 0.00, 0.00)  | DC                              | NA      |                 |
|          | 3RD HIGHEST VALUE IS 0.55951 AT ( -1900.00, 800.00, 0.00, 0.00)  | DC                              | NA      |                 |
|          | 4TH HIGHEST VALUE IS 0.55950 AT ( -1600.00, 700.00, 0.00, 0.00)  | DC                              | NA      |                 |
|          | 5TH HIGHEST VALUE IS 0.55867 AT ( -1700.00, 800.00, 0.00, 0.00)  | DC                              | NA      |                 |
|          | 6TH HIGHEST VALUE IS 0.55601 AT ( -2000.00, 900.00, 0.00, 0.00)  | DC                              | NA      |                 |
|          | 7TH HIGHEST VALUE IS 0.55565 AT ( -1900.00, 900.00, 0.00, 0.00)  | DC                              | NA      |                 |
|          | 8TH HIGHEST VALUE IS 0.55399 AT ( -1800.00, 700.00, 0.00, 0.00)  | DC                              | NA      |                 |
|          | 9TH HIGHEST VALUE IS 0.55167 AT ( -2000.00, 800.00, 0.00, 0.00)  | DC                              | NA      |                 |
|          | 10TH HIGHEST VALUE IS 0.55056 AT ( -1500.00, 700.00, 0.00, 0.00) | DC                              | NA      |                 |



\*\*\* ISCST3 - VERSION 09101 \*\*\*      \*\*\* Alliance Power, Inc.  
   \*\*\* Century Substation (Unscaled Annual-8760)

\*\*\* 03/07/01

12:48:33

\*\*MODELOPTs:

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\*\*\* Message Summary : ISCST3 Model Execution \*\*\*

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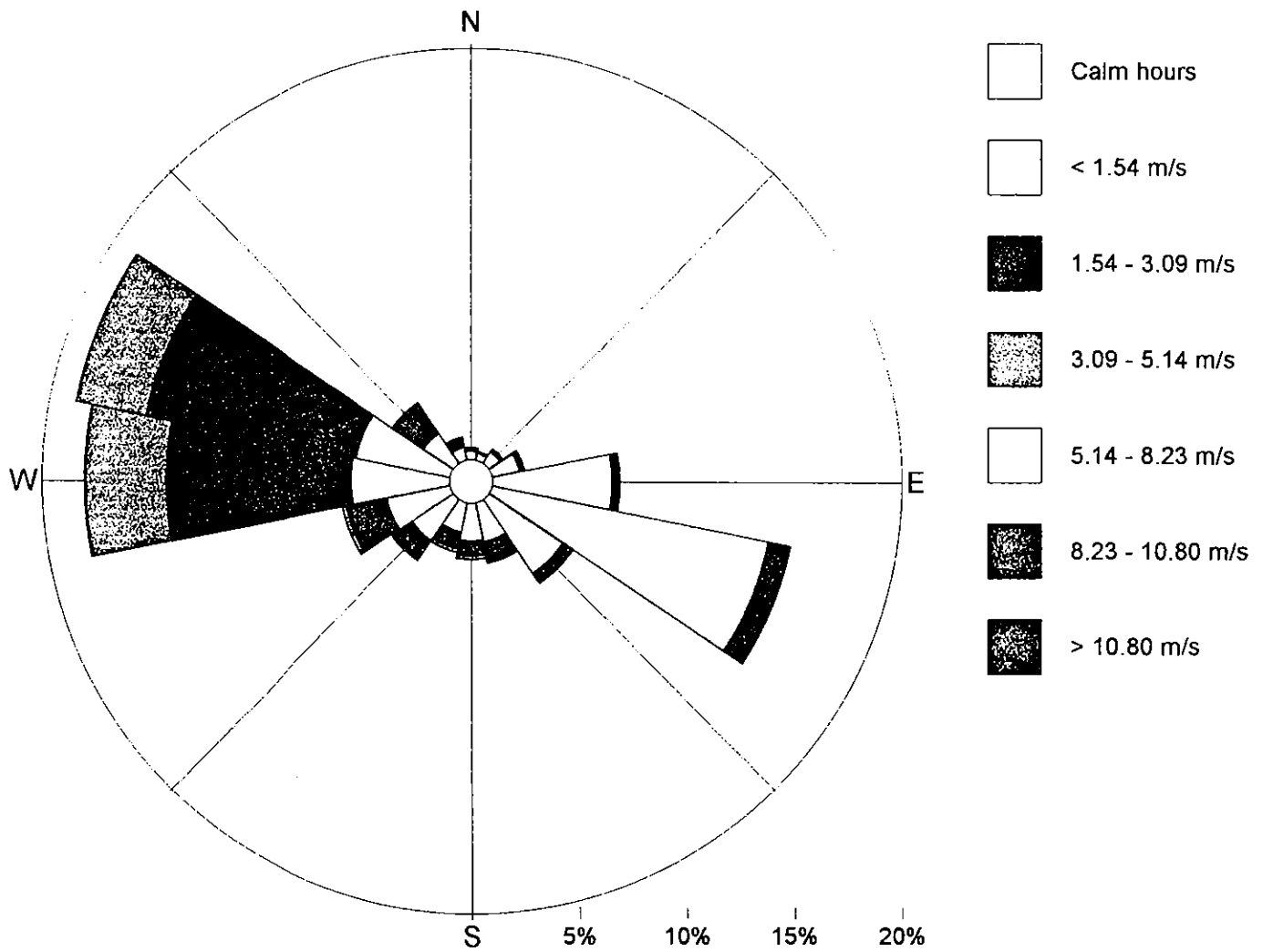
A Total of            0 Fatal Error Message(s)  
A Total of            0 Warning Message(s)  
A Total of            1398 Informational Message(s)  
A Total of            1396 Calm Hours Identified

\*\*\*\*\* FATAL ERROR MESSAGES \*\*\*\*\*  
\*\*\* NONE \*\*\*

\*\*\*\*\* WARNING MESSAGES \*\*\*\*\*  
\*\*\* NONE \*\*\*

\*\*\*\*\*  
\*\*\* ISCST3 Finishes Successfully \*\*\*  
\*\*\*\*\*

# Windrose



Redlands Met Station

**ATTACHMENT J**

**NOISE ISOPLETHS**

BLACK & VEATCH

MEMORANDUM

Alliance Colton, LLC  
Colton California GE 10B Simple Cycle Sites  
Facility Noise Emissions

B&V Project 099918.055

March 8, 2001

To: Mike Emmerling

From: Andrew Dicke

We have evaluated the facility noise emissions from the proposed Alliance Simple Cycle Combustion Turbine Facilities. We have evaluated both the Century Substation Site and the Drews Substation Site.

A local ordinance requires the sound level not exceed 65 dBA at the site property boundaries. This criteria is applicable at both sites. The sites are located in relatively remote locations. In some instances, compliance with the 65 dBA property boundary requirement will require additional capital cost with no associated benefit to the surrounding community. The client should investigate the possibility of obtaining variances from the property boundary requirements at these locations.

The Century Site is located near existing buildings. These buildings are identified as industrial offices. B&V generally recommend that sound levels not exceed 60 dBA at the exterior of office structures. Modeling results indicated the facility sound levels would exceed both the 65 dBA property boundary criteria and the recommended level of 60 dBA at the office buildings. A 15 foot tall barrier wall along the south property boundary would satisfy the 65 dBA property boundary criteria to the south and the recommended 60 dBA target at the buildings. However, sound levels would be approximately 80 dBA at the north boundary. B&V recommends installing a barrier wall along the south boundary of the site and pursue a variance for the other boundaries. Compliance with the 65 dBA property boundary criteria could be achieved by installing a 15 foot tall barrier wall along all new property boundaries and keeping the existing 10 foot tall barrier wall around the existing substation.

The Drews Site is located in a very remote location. There are no existing developments within the existing area. The projected facility sound level is approximately 75 dBA at the property boundaries. However, there is not development in the area to be impacted by the facility noise emissions. The installation of additional mitigation would result in increased facility capital cost with no associated benefits to the surrounding community. B&V recommends pursuit of a variance from the property boundary criteria. If a variance is not available, facility mitigation must include the Universal Silencer "Option 3" silencer, as specified for the Century Site, and a 15 foot tall barrier wall along all property boundaries.

## ENVIRONMENTAL NOISE EMISSIONS

**Environmental Noise Limit.** The client has indicated the plant must satisfy a local noise criteria of 65 dBA at the property boundary. It is B&V's understanding the client is pursuing a variance to this noise criteria. The noise modeling will be conducted based on standard equipment noise emission levels and mitigation necessary to satisfy the 65 dBA noise criteria.

**Century Site.** Existing buildings are located approximately 200 feet southeast of the turbine locations. These buildings are identified as industrial offices. B&V generally recommends that sound levels outside of office/commercial developments not exceed 60 dBA. Levels above 60 dBA would likely result in complaints from workers within the offices.

Alliance Colton, LLC  
Colton California GE 10B Simple Cycle Sites  
Facility Noise Emissions

B&amp;V Project 99918.055

March 2, 2001

**Drews Site.** The Drews site is located in a remote area. There is no existing development within close proximity to the site. Mitigation will be evaluated to achieve the noise criteria of 65 dBA at the property boundary.

**Noise Modeling Methodology.**

The facility noise emissions were modeled using noise prediction software developed at Black & Veatch. The model simulated the outdoor propagation of sound from each point source and accounted for sound wave divergence, atmospheric sound absorption, sound directivity, and sound attenuation due to interceding barriers. A database was developed which specified the location, octave band sound power levels, and sound directivity of each noise source. A receptor grid was specified which covered the entire area of interest. The model calculated the overall A-weighted sound pressure level at each receptor location based on the octave band sound level contribution of each noise source. Finally, a noise contour plot was produced based on the overall sound pressure level at each receptor location.

Noise modeling was conducted to predict the environmental noise emissions during normal facility operation. Normal operation excludes intermittent activities such as start-up, shut down, steam release, bypass operation, and any other abnormal or upset operating conditions.

**Noise Sources.** The equipment arrangement is based on B&V Drawings that depict the facility site arrangements on aerial site photographs. The primary noise sources anticipated with these facilities include the combustion turbine generator (CTG) packages [GE 10], and gas compressor equipment. The combustion turbine equipment noise modeling includes the turbine exhaust, turbine inlet, turbine enclosure, generator enclosure, lube oil coolers, and enclosure ventilation equipment. The turbine noise emissions are based on data provided by General Electric. The exhaust noise is based on data provided by Universal Silencer. The gas compressor noise emissions are based on data provided by the Edison Electric Institute (EEI) in the Electric Power Plant Environmental Noise Guide (1984).

**Equipment Noise Emissions.** The environmental noise emissions during normal facility operation were estimated based on standard combustion turbine equipment, with the exception of the exhaust silencer.

The Exhaust noise was based on data provided by Universal Silencer. The modeling for the Century Site assumed a silencer that achieved 35 dBA at 400 feet (Option 3 Silencer). The modeling for the Drews Site assumed a silencer that achieved 60 dBA at 400 feet from the equipment (Option 1 Silencer).

**Century Substation Site Noise Emissions**

The Century Site noise emissions are shown in Figures Century 1 and Century 2. Figure Century 1 depicts the facility noise emissions with the existing 10 foot tall wall around the substation and no wall along the combustion turbine facility boundary. The facility noise emissions are anticipated to be up to 80 dBA at the property boundary and 65 dBA at the office buildings.

Figure Century 2 depicts the facility noise emissions with a 15 foot tall solid barrier on all property boundaries. The facility noise emissions will be 65 dBA or less at all boundaries and approximately 55 dBA at the office buildings. These levels will satisfy the property boundary criteria of 65 dBA and satisfy the recommended level of 60 dBA at the office building.

A barrier wall located along only the south boundary would satisfy the 65 dBA property boundary criteria to the south, and the recommended level of 60 dBA to the office building. The levels

Alliance Colton, LLC  
Colton California GE 10B Simple Cycle Sites  
Facility Noise Emissions

B&V Project 99918.055

March 2, 2001

would exceed the 65 dBA criteria to the north. There is no development to the north. A barrier wall on the north boundary, while satisfying the property boundary criteria, will not provide any benefit to the surrounding community. In addition, a barrier wall to the north would reflect a portion of the turbine noise towards the existing office buildings. The projected sound levels include the barrier reflective effect. Sound levels at the office building would be approximately 2 dBA lower without the north boundary wall. B&V recommends installing the wall along the south property boundary of the new site and keep the existing 10 foot wall around the existing substation and obtain a variance from the property boundary code along the north boundary.

***Drews Substation Site Noise Emission***

The Drews Site noise emissions are shown in Figures Drews 1 and Drews 2. Figure Drews 1 depicts the facility noise emissions with the existing 10 foot tall wall along around the substation and no wall along the existing boundary. The facility noise emissions are anticipated to be 75 dBA at the property boundary. Figure Drews 2 depicts the facility noise emissions with a new 15 foot tall wall around the boundary. The facility sound level will exceed 65 dBA with this wall. Achieving 65 dBA would require the installation of additional stack silencing.

B&V recommends obtaining a variance from the 65 dBA property boundary criteria. If a variance is not available, achieving 65 dBA at the boundary, would require a 15 foot tall wall around the boundary and installation of the Universal "Option C" silencer.

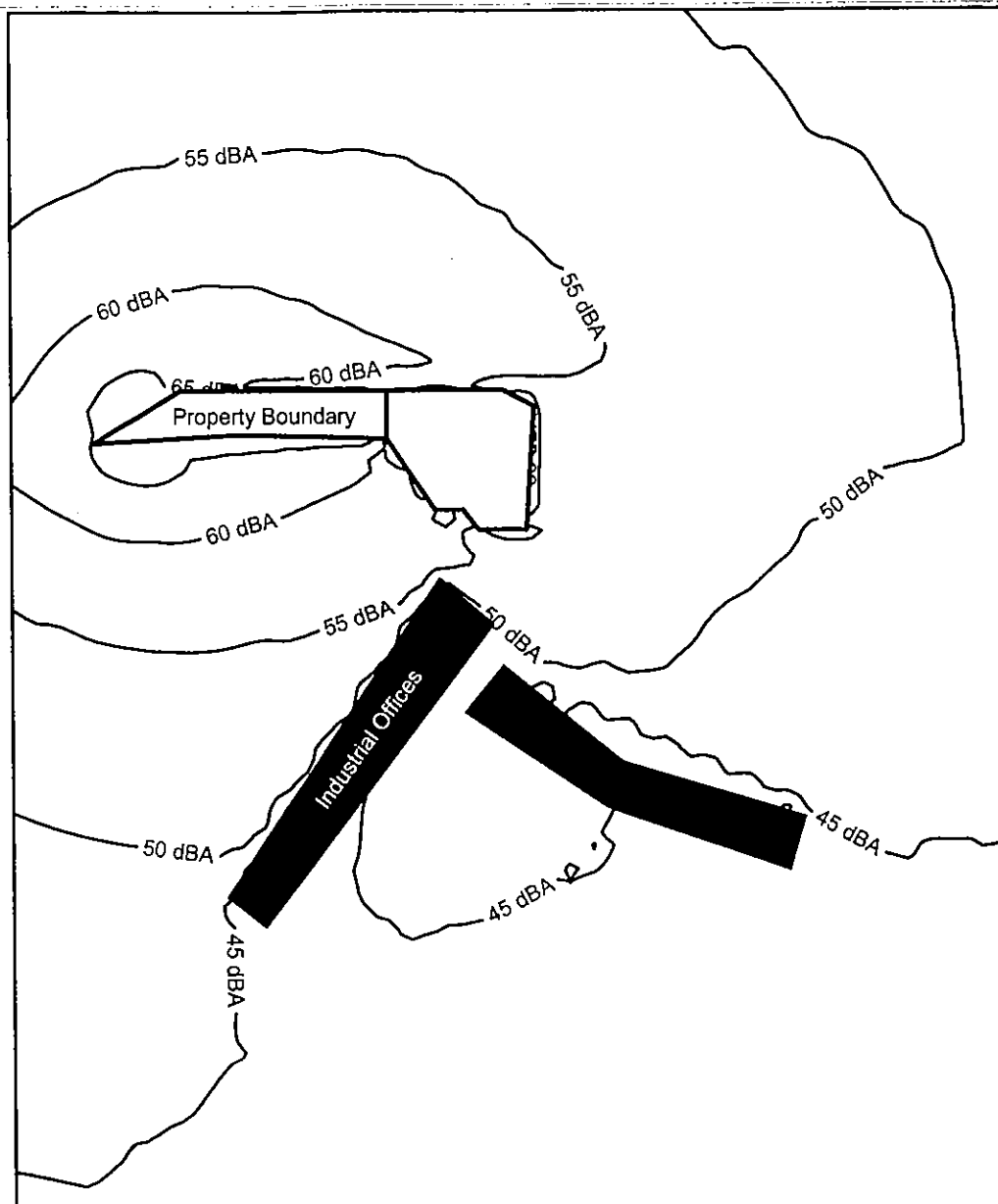
Should you have any questions or comments please contact me at 913-458-2063.

Cc: W. Brent Ferren

Alliance Colton, LLC  
 Colton California GE 10B Simple Cycle Sites  
 Facility Noise Emissions

B&amp;V Project 99918.055

March 2, 2001

**EQUIPMENT SOUND LEVEL SPECIFICATIONS**

CTG 10 Standard Package  
 Exhaust Silencer - 35 dBA at 400 feet  
 (Universal Silencer Option 3)

Barrier Wall Around Turbines and  
 Substation Property Boundary - 20' tall

**Figure Century 2.**

GE 10B EQUIPMENT WITH 20' TALL  
 PROPERTY BOUNDARY BARRIER WALL

Predicted A-weighted sound pressure levels (re: 20e-6 Pa)  
 during normal operation of the proposed facility. Sound pressure  
 level results do not include the barrier effect of off-site buildings,  
 structures, and intervening terrain.

**CITY OF COLTON  
 CENTURY SUBSTATION SITE**



0 FT 250 FT 500 FT

**ATTACHMENT K**  
**BIOLOGICAL RESOURCES**



**City File Index D-01-99  
EPA Grant No. X989085-01-0**

**ENVIRONMENTAL ASSESSMENT/INITIAL STUDY  
FOR THE CITY OF COLTON  
SLUDGE-TO-OIL-REACTOR SYSTEM (STORS) PROJECT**

**Prepared for**  
**U.S. ENVIRONMENTAL PROTECTION AGENCY**  
**Region IX**  
**San Francisco, California**  
**and**  
**CITY OF COLTON**  
**Colton, California**

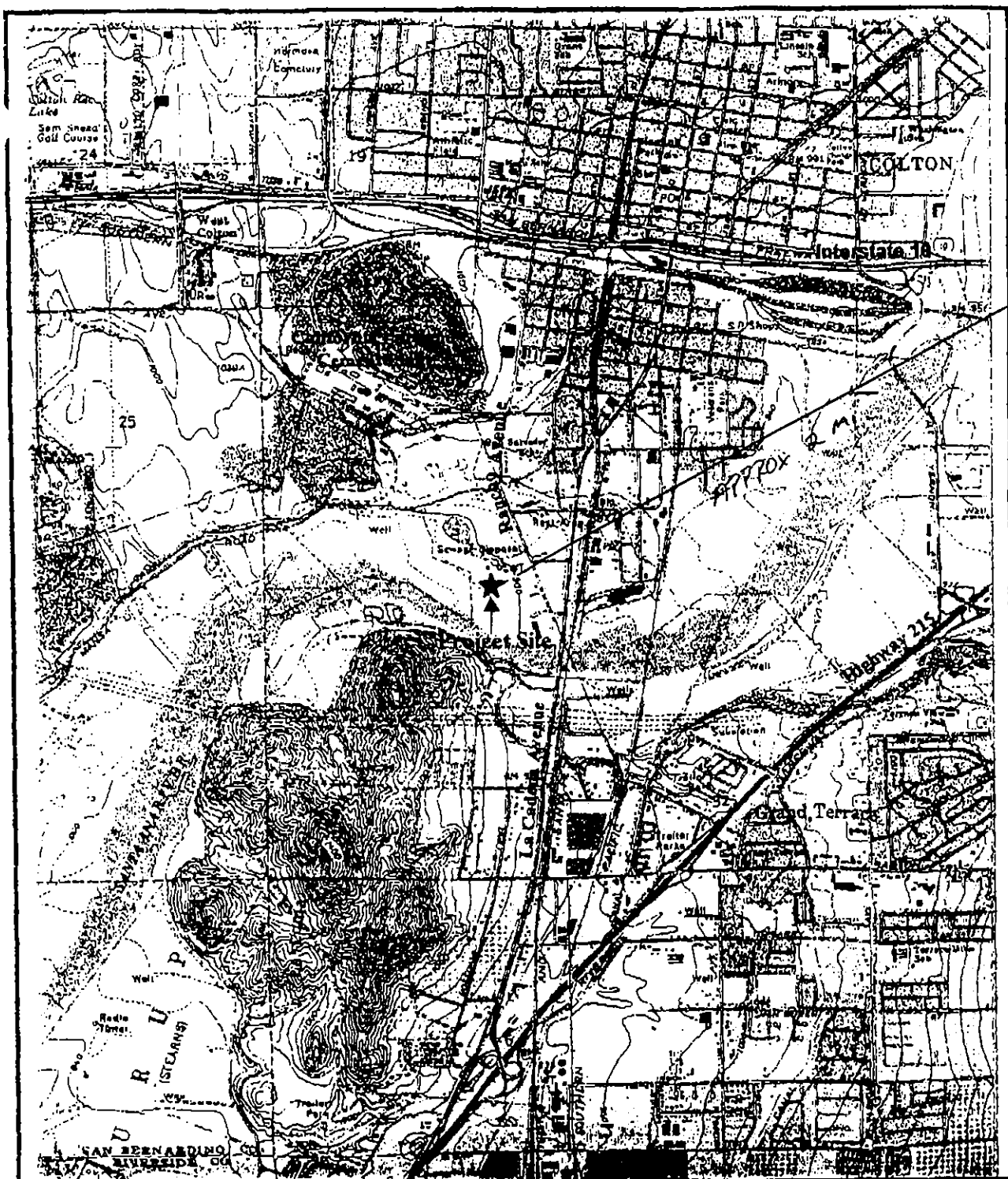
**Prepared by**  
**ENSR**  
**Fort Collins, Colorado**

**January 1999**

---

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| 1.4.4 Alternatives Considered .....   | 1-9        |
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| <b>3.0 EXISTING ENVIRONMENT, POTENTIAL ENVIRONMENTAL IMPACTS, AND MITIGATION MEASURES .....</b> | <b>3-1</b> |
| 3.1 Earth .....   | 3-1        |
| 3.1.1 Existing Environment .....  | 3-1        |
| 3.1.2 Potential Impacts.....  | 3-2        |
| 3.1.3 Mitigation Measures .....   | 3-2        |
| 3.2 Air .....   | 3-2        |
| 3.2.1 Existing Environment .....  | 3-2        |
| 3.2.2 Potential Impacts.....  | 3-5        |
| 3.2.3 Mitigation Measures .....   | 3-8        |
| 3.3 Water Resources .....   | 3-7        |
| 3.3.1 Existing Environment .....  | 3-7        |
| 3.3.2 Potential Impacts.....  | 3-7        |
| 3.3.3 Mitigation Measures .....   | 3-8        |
| 3.4 Biological Resources .....  | 3-8        |
| 3.4.1 Existing Environment .....  | 3-8        |
| 3.4.2 Potential Impacts.....  | 3-9        |



Scale: 1" = 2,000 feet

Figure 1-2

Site Location Map for the  
Colton STORS Project

1562-001-700

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No additional wastewater or other fluids will be discharged into surface waters, as a result of the STORS process. Treatment operations at the Colton Plant will continue (i.e., treated wastewater is discharged to the RIX facility, where it undergoes tertiary treatment prior to discharge to Reach 4 of the Santa Ana River).

No groundwater will be affected by the proposed Project; therefore, there will be no change in the quantity of groundwater nor will the direction or rate of groundwater flow be altered.

### **3.3.3 Mitigation Measures**

No impacts to water will occur as a result of the proposed Project; therefore, no mitigation is necessary or proposed.

## **3.4 Biological Resources**

### **3.4.1 Existing Environment**

#### **3.4.1.1 Vegetation**

The Project area is located entirely within the existing Colton Plant boundaries. The Project site has previously been disturbed by the Colton Plant activities. Initial grading of the site for construction of the wastewater treatment plant in 1949 resulted in the removal of all native vegetation, such as willows (*Salix* spp.), shrubs, and mule fat scrub (*Baccharis glutinosa*). Over the ensuing years, the area surrounding the treatment facilities has been invaded by a variety of non-native weedy plant species. However, these species are controlled by plant maintenance activities, which consist of disking the soil each year.

The Project study area currently consists of bare soil covered with compacted gravel. During the site walkover on August 6, 1998, a few Russian thistle (*Salsola iberica*) plants were observed at the Project site. Other species that potentially grow in the area include ruderal (weedy) species such as Spanish pepper (*Schinus molle*), Brazilian pepper (*Schinus terebinthifolius*), tree tobacco (*Nicotiana glauca*), telegraph weed (*Heterotheca grandiflora*), wild mustard (*Brassica* sp.), and annual grasses (ENSR 1995). Due to the lack of standing or flowing water, no riparian species occur within the Project study area.

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#### **3.4.1.2 Wildlife**

The lack of diverse vegetative communities and water resources within the Project study area limits the development of diverse wildlife communities. During the site walkover that was conducted on August 6, 1998, no wildlife species were observed. The disturbed and sparsely vegetated area likely supports animals such as small rodents, songbirds, jackrabbit, cottontail, snakes, and raptors. Based on previous studies conducted near the site, species that could occur in the area include western fence lizard (*Sceloporus occidentalis*), valley pocket gopher (*Thomomys bottae*), mice, black-tailed jackrabbit (*Lepus californicus*), mourning dove (*Zenaida macroura*), and various songbirds (URS Consultants 1989). Red-tailed hawk (*Buteo jamaicensis*) and American kestrel (*Falco sparverius*) are common raptors that may forage over the site.

#### **3.4.1.3 Threatened, Endangered, and Special Status Species**

A review of the California Natural Diversity Data Base (CNDDB) (California Department of Fish and Game 1998) indicated that eight species are known to occur within approximately 2 miles of the Project study area (Table 3-3). The CNDDB analysis identified known records for any listed or special status species in the U.S. Geological Survey San Bernardino South Quadrangle (7.5-minute topographic series). Based on the habitat present within the Project study area, none of these species would be expected to be present. It is possible that the Los Angeles pocket mouse could potentially move through the area. However, the lack of vegetative cover and disturbance at the site would indicate transient use.

#### **3.4.2 Potential Impacts**

The effects on biological resources of constructing the proposed STORS facility will involve the loss of approximately 8,000 square feet (less than 0.2 acre) of previously disturbed, compacted soils. Since the site contains a sparse cover of weedy plant species that are controlled for weeds on an annual basis, it represents low quality habitat for wildlife species. The small area of disturbance represents a minor loss of habitat for reptiles, rodents, and birds. Facility construction will not remove any habitat used by threatened, endangered, or special status species.

Operation of the facility will not affect vegetation and wildlife communities within the Project site, or threatened, endangered, or special status species that occur in the general area. Vehicle traffic, noise, and human presence will not be expected to displace resident wildlife species. The Project will not discharge any chemicals at the site or into the Santa Ana River, as part of the Colton Plant effluent.

Table 3-3

**Threatened, Endangered, and Special Status Species Known to Occur  
Near the Proposed Colton STORS Project Site**

| Species                       | Scientific Name                              | Status | Location in Relation to Project Study Area                                 | Habitat  |
|-------------------------------|--|--------|--|--|
| Western Yellow-billed cuckoo  | <i>Coccyzus americanus occidentalis</i>      | SE     | Approximately 1,000 ft south of the site                                   | Nesting habitat occurs within the riparian area along the Santa Ana River                    |
| California gnatcatcher        | <i>Polioptila californica</i>                | FE     | Approximately 5,000 ft northwest of site near Slover Mountain              | Permanent resident of coastal sage scrub in arid washes on mesas and slopes                  |
| Los Angeles pocket mouse      | <i>Perognathus longimembris brevinasus</i>   | FSC    | Approximately 3,000 ft northwest of site on Slover Mountain                | Lower elevation grasslands and coastal sage communities in open ground with fine sandy soils |
| Santa Ana sucker              | <i>Calostomus santeanae</i>                  | FC     | Approximately 5,000 ft south of site in the Santa Ana River                | Sand, rubble, and boulder bottoms in large rivers  |
| Pringles monardella           | <i>Monardella pringlei</i>                   | FSC    | Approximately 6,000 ft northwest of site                                   | Sandy hills in coastal scrub communities   |
| Santa Ana River woolly-star   | <i>Eriastrum densifolium sanctorum</i>       | FE, SE | Approximately 5,000 ft east of the site                                    | Sandy soils on river floodplains or terraced fluvial deposits                                |
| Parrys spineflower            | <i>Chorizanthe parryi</i> var. <i>parryi</i> | FSC    | Approximately 5,400 ft northeast of site                                   | Dry sandy soils in coastal scrub and chaparral   |
| Delhi Sands flower-loving fly | <i>Rhaphiomidas terminatus abdominalis</i>   | FE     | Approximately 5,200 ft west and northwest of the site near Slover Mountain | Fine, sandy soils with dunes and sparse vegetation   |

Status: FE = Federal Endangered; FC = Federal Candidate; FSC = Federal Species of Concern; SE = State Endangered.

**ATTACHMENT L**  
**FIRE DEPARTMENT SERVE LETTER**



Thomas T. Hendrix  
Fire Chief

March 15, 2001

Alliance Power  
13934 Eberle Road  
Bakersfield, CA 93313

Subject: Fire Service Verification Letter

Attention: Matt Olson

Mr. Olsen:

Please accept this letter as verification that the City of Colton Fire Department provides emergency medical and fire suppression services to the following addresses within the City:

- 559 South Pepper Avenue\*
- 661 South Cooley Drive

• The City of Colton's boundary extends south on Pepper to Slover and west to Sycamore. The area east of Pepper and south of the freeway in part of a County pocket.

Please contact me should you require any additional information.

Sincerely,

Alan J. Sork  
Fire Marshal

FIRE DEPARTMENT  
303 East "E" St.  
Colton, CA 92324  
(909) 370-5100

CIVIC CENTER  
650 N. La Cadea Drive  
Colton, CA 92324  
(909) 370-5099



**ATTACHMENT M**

**TRAFFIC AND TRANSPORTATION DOCUMENTS**

TURNING MOVEMENTS by Traffic Counts, Inc

Code : COLTON  
MOUNT VERNON AVENUE  
COOLEY DRIVE  
CITY OF COLTON

PAGE: 1  
FILE: H9202034  
DATE: 2/10/92

Movements by: VEHICLES

|       | From North |      |     | From East |      |     | From South |      |     | From West |      |    | Vehicle |
|-------|------------|------|-----|-----------|------|-----|------------|------|-----|-----------|------|----|---------|
|       | RT         | THRU | LT  | RT        | THRU | LT  | RT         | THRU | LT  | RT        | THRU | LT | Total   |
| 3 AM  | 20         | 38   | 30  | 21        | 4    | 9   | 19         | 50   | 55  | 4         | 3    | 6  | 259     |
| 5     | 22         | 57   | 45  | 30        | 8    | 13  | 26         | 63   | 47  | 7         | 11   | 8  | 337     |
| 0     | 24         | 51   | 42  | 19        | 6    | 20  | 37         | 82   | 49  | 3         | 5    | 4  | 342     |
| 5     | 52         | 74   | 72  | 20        | 7    | 25  | 52         | 113  | 55  | 6         | 1    | 6  | 483     |
| TOTAL | 118        | 220  | 189 | 90        | 25   | 67  | 134        | 308  | 206 | 20        | 20   | 24 | 1421    |
| 0 AM  | 19         | 65   | 55  | 26        | 3    | 34  | 68         | 65   | 24  | 6         | 2    | 4  | 371     |
| 5     | 14         | 54   | 74  | 24        | 2    | 16  | 75         | 57   | 35  | 7         | 1    | 7  | 366     |
| 0     | 13         | 59   | 38  | 35        | 2    | 25  | 56         | 73   | 23  | 9         | 1    | 5  | 339     |
| 5     | 20         | 52   | 36  | 22        | 1    | 18  | 42         | 65   | 20  | 8         | 3    | 3  | 290     |
| TOTAL | 66         | 230  | 203 | 107       | 8    | 93  | 241        | 260  | 102 | 30        | 7    | 19 | 1366    |
| Break |            |      |     |           |      |     |            |      |     |           |      |    |         |
| 10 AM | 6          | 96   | 40  | 70        | 2    | 89  | 28         | 104  | 26  | 14        | 5    | 16 | 496     |
| 15    | 11         | 99   | 44  | 47        | 5    | 67  | 31         | 89   | 25  | 9         | 5    | 8  | 440     |
| 30    | 7          | 126  | 36  | 36        | 1    | 42  | 32         | 111  | 33  | 11        | 3    | 10 | 448     |
| 45    | 4          | 108  | 42  | 33        | 1    | 43  | 28         | 119  | 18  | 15        | 6    | 15 | 432     |
| TOTAL | 28         | 429  | 162 | 186       | 9    | 241 | 119        | 423  | 102 | 49        | 19   | 49 | 1816    |
| 5     | 5          | 123  | 49  | 37        | 6    | 56  | 35         | 95   | 47  | 14        | 2    | 9  | 476     |
| 15    | 4          | 128  | 52  | 48        | 7    | 54  | 42         | 132  | 24  | 8         | 4    | 11 | 514     |
| 30    | 8          | 121  | 35  | 45        | 4    | 52  | 41         | 124  | 35  | 13        | 8    | 16 | 502     |
| 45    | 6          | 117  | 46  | 20        | 3    | 48  | 62         | 103  | 32  | 7         | 5    | 10 | 459     |
| TOTAL | 23         | 489  | 182 | 150       | 20   | 210 | 178        | 454  | 138 | 42        | 19   | 46 | 1951    |
| Break |            |      |     |           |      |     |            |      |     |           |      |    |         |
| 00 PM | 8          | 111  | 36  | 48        | 1    | 38  | 49         | 120  | 20  | 9         | 4    | 15 | 459     |
| 15    | 10         | 94   | 40  | 44        | 3    | 40  | 36         | 116  | 13  | 6         | 2    | 12 | 416     |
| 30    | 7          | 143  | 51  | 63        | 2    | 55  | 62         | 149  | 20  | 12        | 3    | 16 | 583     |
| 45    | 6          | 99   | 49  | 40        | 2    | 44  | 43         | 92   | 14  | 4         | 2    | 11 | 406     |
| TOTAL | 31         | 447  | 176 | 195       | 8    | 177 | 190        | 477  | 67  | 31        | 11   | 54 | 1864    |
| Break |            |      |     |           |      |     |            |      |     |           |      |    |         |
| 00 PM | 8          | 115  | 45  | 42        | 2    | 36  | 24         | 95   | 19  | 17        | 6    | 25 | 434     |
| 15    | 2          | 130  | 38  | 47        | 1    | 69  | 41         | 128  | 15  | 11        | 5    | 20 | 507     |
| 30    | 3          | 100  | 42  | 51        | 6    | 60  | 23         | 117  | 22  | 9         | 6    | 19 | 458     |
| 45    | 8          | 95   | 70  | 115       | 4    | 72  | 40         | 130  | 16  | 5         | 7    | 32 | 594     |
| TOTAL | 21         | 440  | 195 | 255       | 13   | 237 | 128        | 470  | 72  | 42        | 24   | 96 | 1993    |

## TURNING MOVEMENTS by Traffic Counts, Inc

Code : COLTON

PAGE: 2

Location: MOUNT VERNON AVENUE

FILE: H9202034

St: COOLEY DRIVE

DATE: 2/10/92

City : CITY OF COLTON

Movements by: VEHICLES

|      | From North |      |     | From East |      |     | From South |      |    | From West |      |    | Vehicle |
|------|------------|------|-----|-----------|------|-----|------------|------|----|-----------|------|----|---------|
|      | RT         | THRU | LT  | RT        | THRU | LT  | RT         | THRU | LT | RT        | THRU | LT | Total   |
| 9 PM | 5          | 130  | 66  | 40        | 2    | 50  | 25         | 115  | 8  | 7         | 4    | 24 | 476     |
| 5    | 4          | 120  | 42  | 52        | 2    | 42  | 28         | 130  | 3  | 11        | 8    | 25 | 467     |
| 0    | 2          | 114  | 26  | 49        | 3    | 34  | 16         | 100  | 6  | 9         | 2    | 13 | 374     |
| 5    | 1          | 110  | 20  | 44        | 1    | 19  | 14         | 93   | 9  | 10        | 3    | 8  | 332     |
| OTAL | 12         | 474  | 154 | 185       | 8    | 145 | 83         | 438  | 26 | 37        | 17   | 70 | 1649    |

|       |     |      |      |      |    |      |      |      |     |     |     |     |       |
|-------|-----|------|------|------|----|------|------|------|-----|-----|-----|-----|-------|
| TOTAL | 299 | 2729 | 1261 | 1168 | 91 | 1170 | 1073 | 2830 | 713 | 251 | 117 | 358 | 12060 |
|-------|-----|------|------|------|----|------|------|------|-----|-----|-----|-----|-------|

## PEAK PERIOD ANALYSIS FOR THE PERIOD: 7:00 AM - 6:00 PM

| DIRECTION<br>FROM   | START<br>PEAK HOUR | PEAK HR<br>FACTOR | ..... VOLUMES ..... |      |      |       | .... PERCENTS ... |      |      |
|---------------------|--------------------|-------------------|---------------------|------|------|-------|-------------------|------|------|
|                     |                    |                   | Right               | Thru | Left | Total | Right             | Thru | Left |
| North               | 12:00 PM           | 0.94              | 23                  | 489  | 182  | 694   | 3                 | 70   | 26   |
| East                | 4:15 PM            | 0.68              | 253                 | 13   | 251  | 517   | 49                | 3    | 49   |
| South               | 12:00 PM           | 0.96              | 178                 | 454  | 138  | 770   | 23                | 59   | 18   |
| West                | 4:00 PM            | 0.84              | 42                  | 24   | 96   | 162   | 26                | 15   | 59   |
| Entire Intersection |                    |                   |                     |      |      |       |                   |      |      |
| North               | 4:15 PM            | 0.86              | 18                  | 455  | 216  | 689   | 3                 | 66   | 31   |
| East                |                    | 0.68              | 253                 | 13   | 251  | 517   | 49                | 3    | 49   |
| South               |                    | 0.91              | 129                 | 490  | 61   | 680   | 19                | 72   | 9    |
| West                |                    | 0.85              | 32                  | 22   | 95   | 149   | 21                | 15   | 64   |

## TURNING MOVEMENTS by Traffic Counts, Inc

Code : COLTON

PAGE: 1

MOUNT VERNON AVENUE

FILE: H9202034

COOLEY DRIVE

City : CITY OF COLTON

Movements by: VEHICLES

DATE: 2/10/92

|       | From North |      |     | From East |      |     | From South |      |     | From West |      |    | Vehicle |
|-------|------------|------|-----|-----------|------|-----|------------|------|-----|-----------|------|----|---------|
|       | RT         | THRU | LT  | RT        | THRU | LT  | RT         | THRU | LT  | RT        | THRU | LT | Total   |
| 7 AM  | 20         | 38   | 30  | 21        | 4    | 9   | 19         | 50   | 55  | 4         | 3    | 6  | 259     |
| 8 AM  | 22         | 57   | 45  | 30        | 8    | 13  | 26         | 63   | 47  | 7         | 11   | 8  | 337     |
| 9 AM  | 24         | 51   | 42  | 19        | 6    | 20  | 37         | 82   | 49  | 3         | 5    | 4  | 342     |
| 10 AM | 52         | 74   | 72  | 20        | 7    | 25  | 52         | 113  | 55  | 6         | 1    | 6  | 483     |
| TOTAL | 118        | 220  | 189 | 90        | 25   | 67  | 134        | 308  | 206 | 20        | 20   | 24 | 1421    |
| 11 AM | 19         | 65   | 55  | 26        | 3    | 34  | 68         | 65   | 24  | 6         | 2    | 4  | 371     |
| 12 PM | 14         | 54   | 74  | 24        | 2    | 16  | 75         | 57   | 35  | 7         | 1    | 7  | 366     |
| 1 PM  | 13         | 59   | 38  | 35        | 2    | 25  | 56         | 73   | 25  | 9         | 1    | 5  | 339     |
| 2 PM  | 20         | 52   | 36  | 22        | 1    | 18  | 42         | 65   | 20  | 8         | 3    | 3  | 290     |
| TOTAL | 66         | 230  | 203 | 107       | 8    | 93  | 241        | 260  | 102 | 30        | 7    | 19 | 1366    |
| TOTAL | 184        | 450  | 392 | 197       | 33   | 160 | 375        | 568  | 308 | 50        | 27   | 43 | 2787    |

## PEAK PERIOD ANALYSIS FOR THE PERIOD: 7:00 AM - 9:00 AM

| DIRECTION<br>FROM | START<br>PEAK HOUR | PEAK HR<br>FACTOR | ..... VOLUMES ..... |      |      |       | .... PERCENTS ... |      |      |
|-------------------|--------------------|-------------------|---------------------|------|------|-------|-------------------|------|------|
|                   |                    |                   | Right               | Thru | Left | Total | Right             | Thru | Left |
| North             | 7:30 AM            | 0.75              | 109                 | 244  | 243  | 596   | 18                | 41   | 41   |
| East              | 7:45 AM            | 0.87              | 105                 | 14   | 100  | 219   | 48                | 6    | 46   |
| South             | 7:30 AM            | 0.81              | 232                 | 317  | 163  | 712   | 33                | 45   | 23   |
| West              | 7:00 AM            | 0.62              | 20                  | 20   | 24   | 64    | 31                | 31   | 38   |

## Entire Intersection

|       |         |      |     |     |     |     |    |    |    |
|-------|---------|------|-----|-----|-----|-----|----|----|----|
| North | 7:30 AM | 0.75 | 109 | 244 | 243 | 596 | 18 | 41 | 41 |
| East  |         | 0.80 | 89  | 18  | 95  | 202 | 44 | 9  | 47 |
| South |         | 0.81 | 232 | 317 | 163 | 712 | 33 | 45 | 23 |
| West  |         | 0.87 | 22  | 9   | 21  | 52  | 42 | 17 | 40 |

## TURNING MOVEMENTS by Traffic Counts, Inc

PAGE: 1

FILE: H9202034

Site Code : COLTON

Street: MOUNT VERNON AVENUE

Street: COOLEY DRIVE

Client : CITY OF COLTON

Movements by: VEHICLES

DATE: 2/10/92

| Time     | From North |      |     | From East |      |     | From South |      |     | From West |      |    | Vehicle<br>Total |
|----------|------------|------|-----|-----------|------|-----|------------|------|-----|-----------|------|----|------------------|
|          | RT         | THRU | LT  | RT        | THRU | LT  | RT         | THRU | LT  | RT        | THRU | LT |                  |
| 1:00 AM  | 6          | 96   | 40  | 70        | 2    | 89  | 28         | 104  | 26  | 14        | 5    | 16 | 496              |
| 1:15     | 11         | 99   | 44  | 47        | 5    | 67  | 31         | 89   | 25  | 9         | 5    | 8  | 440              |
| 1:30     | 7          | 126  | 36  | 36        | 1    | 42  | 32         | 111  | 33  | 11        | 3    | 10 | 448              |
| 1:45     | 4          | 108  | 42  | 33        | 1    | 44  | 28         | 110  | 18  | 15        | 6    | 15 | 432              |
| 1: TOTAL | 28         | 429  | 162 | 186       | 9    | 241 | 119        | 423  | 102 | 49        | 19   | 49 | 1816             |
| 2:00 PM  | 5          | 123  | 49  | 37        | 6    | 56  | 33         | 95   | 47  | 14        | 2    | 9  | 476              |
| 2:15     | 4          | 128  | 52  | 48        | 7    | 54  | 42         | 132  | 24  | 8         | 4    | 11 | 514              |
| 2:30     | 8          | 121  | 35  | 45        | 4    | 52  | 41         | 124  | 33  | 13        | 8    | 16 | 502              |
| 2:45     | 6          | 117  | 46  | 20        | 3    | 48  | 62         | 103  | 52  | 7         | 5    | 10 | 459              |
| 2: TOTAL | 23         | 489  | 182 | 150       | 20   | 210 | 178        | 454  | 138 | 42        | 19   | 46 | 1951             |

|           |    |     |     |     |    |     |     |     |     |    |    |    |      |
|-----------|----|-----|-----|-----|----|-----|-----|-----|-----|----|----|----|------|
| DAY TOTAL | 51 | 918 | 344 | 336 | 29 | 451 | 297 | 877 | 240 | 91 | 38 | 95 | 3767 |
|-----------|----|-----|-----|-----|----|-----|-----|-----|-----|----|----|----|------|

## PEAK PERIOD ANALYSIS FOR THE PERIOD: 11:00 AM 1:00 PM

| DIRECTION<br>FROM | START<br>PEAK HOUR | PEAK HR<br>FACTOR | ..... VOLUMES ..... |      |      |       | .... PERCENTS ... |      |      |
|-------------------|--------------------|-------------------|---------------------|------|------|-------|-------------------|------|------|
|                   |                    |                   | Right               | Thru | Left | Total | Right             | Thru | Left |
| North             | 12:00 PM           | 0.94              | 23                  | 489  | 182  | 694   | 3                 | 70   | 26   |
| East              | 11:00 AM           | 0.68              | 186                 | 9    | 241  | 436   | 43                | 2    | 55   |
| South             | 12:00 PM           | 0.96              | 178                 | 454  | 138  | 770   | 23                | 59   | 18   |
| West              | 11:45 AM           | 0.82              | 50                  | 20   | 51   | 121   | 41                | 17   | 42   |

## Entire Intersection

|       |          |      |     |     |     |     |    |    |    |
|-------|----------|------|-----|-----|-----|-----|----|----|----|
| North | 12:00 PM | 0.94 | 23  | 489 | 182 | 694 | 3  | 70 | 26 |
| East  |          | 0.87 | 150 | 20  | 210 | 380 | 39 | 5  | 55 |
| South |          | 0.96 | 178 | 454 | 138 | 770 | 23 | 59 | 18 |
| West  |          | 0.72 | 42  | 19  | 46  | 107 | 39 | 18 | 43 |

TURNING MOVEMENTS by Traffic Counts, Inc

Code : COLTON  
 MOUNT VERNON AVENUE  
 COOLEY DRIVE  
 CITY OF COLTON

PAGE: 1  
 FILE: H9202034  
 DATE: 2/10/92

Movements by: VEHICLES

| Time  | From North |      |     | From East |      |     | From South |      |    | From West |      |    | Vehicle Total |
|-------|------------|------|-----|-----------|------|-----|------------|------|----|-----------|------|----|---------------|
|       | RT         | THRU | LT  | RT        | THRU | LT  | RT         | THRU | LT | RT        | THRU | LT |               |
| 30 PM | 8          | 111  | 36  | 48        | 1    | 38  | 49         | 120  | 20 | 9         | 4    | 15 | 459           |
| 15    | 10         | 94   | 40  | 44        | 3    | 40  | 36         | 116  | 13 | 6         | 2    | 12 | 416           |
| 30    | 7          | 143  | 51  | 63        | 2    | 55  | 62         | 149  | 20 | 12        | 3    | 16 | 583           |
| 45    | 6          | 99   | 49  | 40        | 2    | 44  | 43         | 92   | 14 | 4         | 2    | 11 | 406           |
| TOTAL | 31         | 447  | 176 | 195       | 8    | 177 | 190        | 477  | 67 | 31        | 11   | 54 | 1864          |

|       |    |     |     |     |   |     |     |     |    |    |    |    |      |
|-------|----|-----|-----|-----|---|-----|-----|-----|----|----|----|----|------|
| TOTAL | 31 | 447 | 176 | 195 | 8 | 177 | 190 | 477 | 67 | 31 | 11 | 54 | 1864 |
|-------|----|-----|-----|-----|---|-----|-----|-----|----|----|----|----|------|

PEAK PERIOD ANALYSIS FOR THE PERIOD: 2:00 PM - 3:00 PM

| DIRECTION FROM | START PEAK HOUR | PEAK HR FACTOR | ..... VOLUMES ..... |      |      |       | .... PERCENTS ... |      |      |
|----------------|-----------------|----------------|---------------------|------|------|-------|-------------------|------|------|
|                |                 |                | Right               | Thru | Left | Total | Right             | Thru | Left |
| North          | 2:00 PM         | 0.81           | 31                  | 447  | 176  | 654   | 5                 | 68   | 27   |
| East           | 2:00 PM         | 0.79           | 195                 | 8    | 177  | 380   | 51                | 2    | 47   |
| South          | 2:00 PM         | 0.79           | 190                 | 477  | 67   | 734   | 26                | 65   | 9    |
| West           | 2:00 PM         | 0.77           | 31                  | 11   | 54   | 96    | 32                | 11   | 56   |

Entire Intersection

|       |         |      |     |     |     |     |    |    |    |
|-------|---------|------|-----|-----|-----|-----|----|----|----|
| North | 2:00 PM | 0.81 | 31  | 447 | 176 | 654 | 5  | 68 | 27 |
| East  |         | 0.79 | 195 | 8   | 177 | 380 | 51 | 2  | 47 |
| South |         | 0.79 | 190 | 477 | 67  | 734 | 26 | 65 | 9  |
| West  |         | 0.77 | 31  | 11  | 54  | 96  | 32 | 11 | 56 |

TURNING MOVEMENTS by Traffic Counts, Inc

Code : COLTON  
 at: MOUNT VERNON AVENUE  
 Subject: COOLEY DRIVE  
 City : CITY OF COLTON

PAGE: 1  
 FILE: H9202034  
 DATE: 2/10/92

Movements by: VEHICLES

| Time  | From North |      |     | From East |      |     | From South |      |    | From West |      |     | Vehicle Total |
|-------|------------|------|-----|-----------|------|-----|------------|------|----|-----------|------|-----|---------------|
|       | RT         | THRU | LT  | RT        | THRU | LT  | RT         | THRU | LT | RT        | THRU | LT  |               |
| 10 PM | 8          | 115  | 45  | 42        | 2    | 36  | 24         | 95   | 19 | 17        | 6    | 25  | 434           |
| 15    | 2          | 130  | 38  | 47        | 1    | 69  | 41         | 128  | 15 | 11        | 5    | 20  | 507           |
| 30    | 3          | 100  | 42  | 51        | 6    | 60  | 23         | 117  | 22 | 9         | 6    | 19  | 458           |
| 45    | 8          | 95   | 70  | 115       | 4    | 72  | 40         | 130  | 16 | 5         | 7    | 32  | 594           |
| TOTAL | 21         | 440  | 195 | 255       | 13   | 237 | 128        | 470  | 72 | 42        | 24   | 96  | 1993          |
| 00 PM | 5          | 130  | 66  | 40        | 2    | 50  | 25         | 115  | 8  | 7         | 4    | 24  | 476           |
| 15    | 4          | 120  | 42  | 52        | 2    | 42  | 28         | 130  | 3  | 11        | 8    | 25  | 467           |
| 30    | 2          | 114  | 26  | 49        | 3    | 34  | 16         | 100  | 6  | 9         | 2    | 13  | 374           |
| 45    | 1          | 110  | 20  | 44        | 1    | 19  | 14         | 93   | 9  | 10        | 3    | 8   | 332           |
| TOTAL | 12         | 474  | 154 | 185       | 8    | 145 | 83         | 438  | 26 | 37        | 17   | 70  | 1649          |
| TOTAL | 33         | 914  | 349 | 440       | 21   | 382 | 211        | 908  | 98 | 79        | 41   | 166 | 3642          |

PEAK PERIOD ANALYSIS FOR THE PERIOD: 4:00 PM - 6:00 PM

| DIRECTION FROM      | START PEAK HOUR | PEAK HR FACTOR | ..... VOLUMES ..... |      |      |       | .... PERCENTS ... |      |      |
|---------------------|-----------------|----------------|---------------------|------|------|-------|-------------------|------|------|
|                     |                 |                | Right               | Thru | Left | Total | Right             | Thru | Left |
| North               | 4:15 PM         | 0.86           | 18                  | 455  | 216  | 689   | 3                 | 66   | 31   |
| East                | 4:15 PM         | 0.68           | 253                 | 13   | 251  | 517   | 49                | 3    | 49   |
| South               | 4:15 PM         | 0.91           | 129                 | 490  | 61   | 680   | 19                | 72   | 9    |
| West                | 4:00 PM         | 0.84           | 42                  | 24   | 96   | 162   | 26                | 15   | 59   |
| Entire Intersection |                 |                |                     |      |      |       |                   |      |      |
| North               | 4:15 PM         | 0.86           | 18                  | 455  | 216  | 689   | 3                 | 66   | 31   |
| East                |                 | 0.68           | 253                 | 13   | 251  | 517   | 49                | 3    | 49   |
| South               |                 | 0.91           | 129                 | 490  | 61   | 680   | 19                | 72   | 9    |
| West                |                 | 0.85           | 32                  | 22   | 95   | 149   | 21                | 15   | 64   |

## TURNING MOVEMENTS by Traffic Counts, Inc

PAGE: 1

FILE: H9202034

ite Code : COLTON

S Street: MOUNT VERNON AVENUE

W Street: COOLEY DRIVE

: CITY OF COLTON

Movements by: VEHICLES

DATE: 2/10/92

| Time<br>Begin | From North |      |     | From East |      |     | From South |      |     | From West |      |    | Vehicle<br>Total |
|---------------|------------|------|-----|-----------|------|-----|------------|------|-----|-----------|------|----|------------------|
|               | RT         | THRU | LT  | RT        | THRU | LT  | RT         | THRU | LT  | RT        | THRU | LT |                  |
| 7:00 AM       | 20         | 38   | 30  | 21        | 4    | 9   | 19         | 50   | 55  | 4         | 3    | 6  | 259              |
| 7:15          | 22         | 57   | 45  | 30        | 8    | 13  | 26         | 63   | 47  | 7         | 11   | 8  | 337              |
| 7:30          | 24         | 51   | 42  | 19        | 6    | 20  | 37         | 82   | 49  | 3         | 5    | 4  | 342              |
| 7:45          | 52         | 74   | 72  | 20        | 7    | 25  | 52         | 113  | 55  | 6         | 1    | 6  | 483              |
| R TOTAL       | 118        | 220  | 189 | 90        | 25   | 67  | 134        | 308  | 206 | 20        | 20   | 24 | 1421             |
| 8:00 AM       | 19         | 65   | 55  | 26        | 3    | 34  | 68         | 65   | 24  | 6         | 2    | 4  | 371              |
| 8:15          | 14         | 54   | 74  | 24        | 2    | 16  | 75         | 57   | 35  | 7         | 1    | 7  | 366              |
| 8:30          | 13         | 59   | 38  | 35        | 2    | 25  | 56         | 73   | 23  | 9         | 1    | 5  | 339              |
| 8:45          | 20         | 52   | 36  | 22        | 1    | 18  | 42         | 65   | 20  | 8         | 3    | 3  | 290              |
| R TOTAL       | 66         | 230  | 203 | 107       | 8    | 93  | 241        | 260  | 102 | 30        | 7    | 19 | 1366             |
| Break         |            |      |     |           |      |     |            |      |     |           |      |    |                  |
| 1:00 AM       | 6          | 96   | 40  | 70        | 2    | 89  | 28         | 104  | 26  | 14        | 5    | 16 | 496              |
| 1:15          | 11         | 99   | 44  | 47        | 5    | 67  | 31         | 89   | 25  | 9         | 5    | 8  | 440              |
| 1:30          | 7          | 126  | 36  | 36        | 1    | 42  | 32         | 111  | 33  | 11        | 3    | 10 | 448              |
| 1:45          | 4          | 108  | 42  | 33        | 1    | 43  | 28         | 119  | 18  | 15        | 6    | 15 | 432              |
| R TOTAL       | 28         | 429  | 162 | 186       | 9    | 241 | 119        | 423  | 102 | 49        | 19   | 49 | 1816             |
| 2:00 PM       | 5          | 123  | 49  | 37        | 6    | 56  | 33         | 95   | 47  | 14        | 2    | 9  | 476              |
| 2:15          | 4          | 128  | 52  | 48        | 7    | 54  | 42         | 132  | 24  | 8         | 4    | 11 | 514              |
| 2:30          | 8          | 121  | 35  | 45        | 4    | 52  | 41         | 124  | 35  | 13        | 8    | 16 | 502              |
| 2:45          | 6          | 117  | 46  | 20        | 3    | 48  | 62         | 103  | 32  | 7         | 5    | 10 | 459              |
| R TOTAL       | 23         | 489  | 182 | 150       | 20   | 210 | 178        | 454  | 138 | 42        | 19   | 46 | 1951             |
| Break         |            |      |     |           |      |     |            |      |     |           |      |    |                  |
| 2:00 PM       | 8          | 111  | 36  | 48        | 1    | 38  | 49         | 120  | 20  | 9         | 4    | 15 | 459              |
| 2:15          | 10         | 94   | 40  | 44        | 3    | 40  | 36         | 116  | 13  | 6         | 2    | 12 | 416              |
| 2:30          | 7          | 143  | 51  | 63        | 2    | 55  | 62         | 149  | 20  | 12        | 3    | 16 | 583              |
| 2:45          | 6          | 99   | 49  | 40        | 2    | 44  | 43         | 92   | 14  | 4         | 2    | 11 | 406              |
| R TOTAL       | 31         | 447  | 176 | 195       | 8    | 177 | 190        | 477  | 67  | 31        | 11   | 54 | 1864             |
| Break         |            |      |     |           |      |     |            |      |     |           |      |    |                  |
| 4:00 PM       | 8          | 115  | 45  | 42        | 2    | 36  | 24         | 95   | 19  | 17        | 6    | 25 | 434              |
| 4:15          | 2          | 130  | 38  | 47        | 1    | 69  | 41         | 128  | 15  | 11        | 5    | 20 | 507              |
| 4:30          | 3          | 100  | 42  | 51        | 6    | 60  | 23         | 117  | 22  | 9         | 6    | 19 | 458              |
| 4:45          | 8          | 95   | 70  | 115       | 4    | 72  | 40         | 130  | 16  | 5         | 7    | 32 | 594              |
| R TOTAL       | 21         | 440  | 195 | 255       | 13   | 237 | 128        | 470  | 72  | 42        | 24   | 96 | 1993             |